VOL. XLVII. No. 5 MAY 1962

MECCANO MAGAZINE

1/3

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Here are three excellent scale models of popular marine craft. Each is powered by a strong nickel-plated clockwork motor, giving 120 to 140 feet on one winding. Propellers and adjustable rudders are of solid brass. You'll be proud to own a Hornby Speedboat. The use of high impact Polystyrene in these models enables toughness and strength to be combined with greater buoyancy and accurate detailing of the decks and superstructure.

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U.K. Price **19/9**

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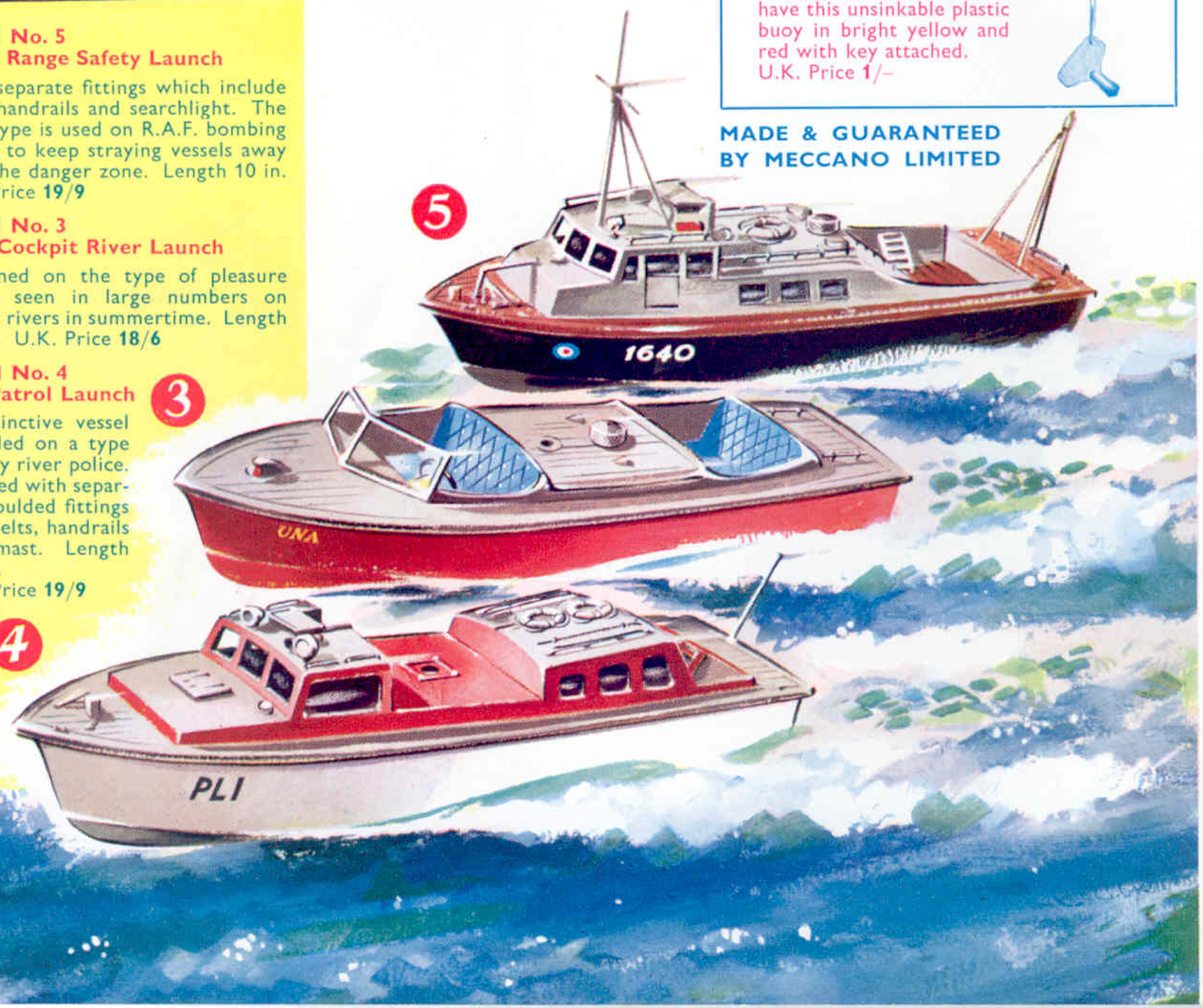

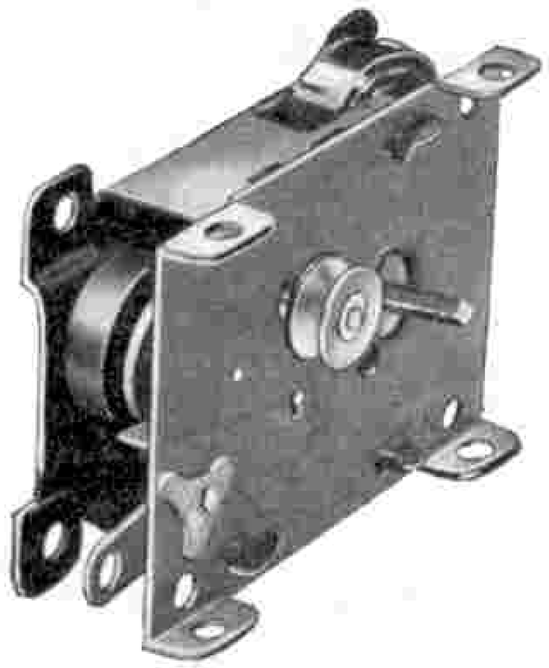

Meccano Magic Motor. Non-reversible, specially intended for driving small models built from Outfits Nos. 0 to 5.
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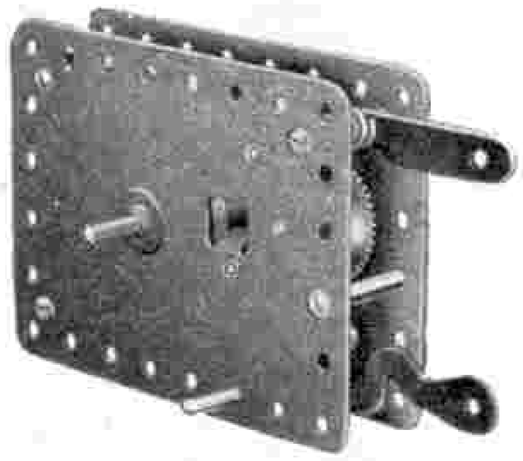

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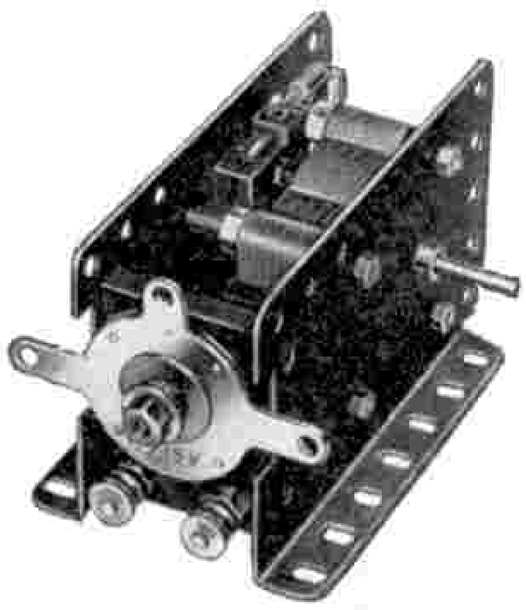

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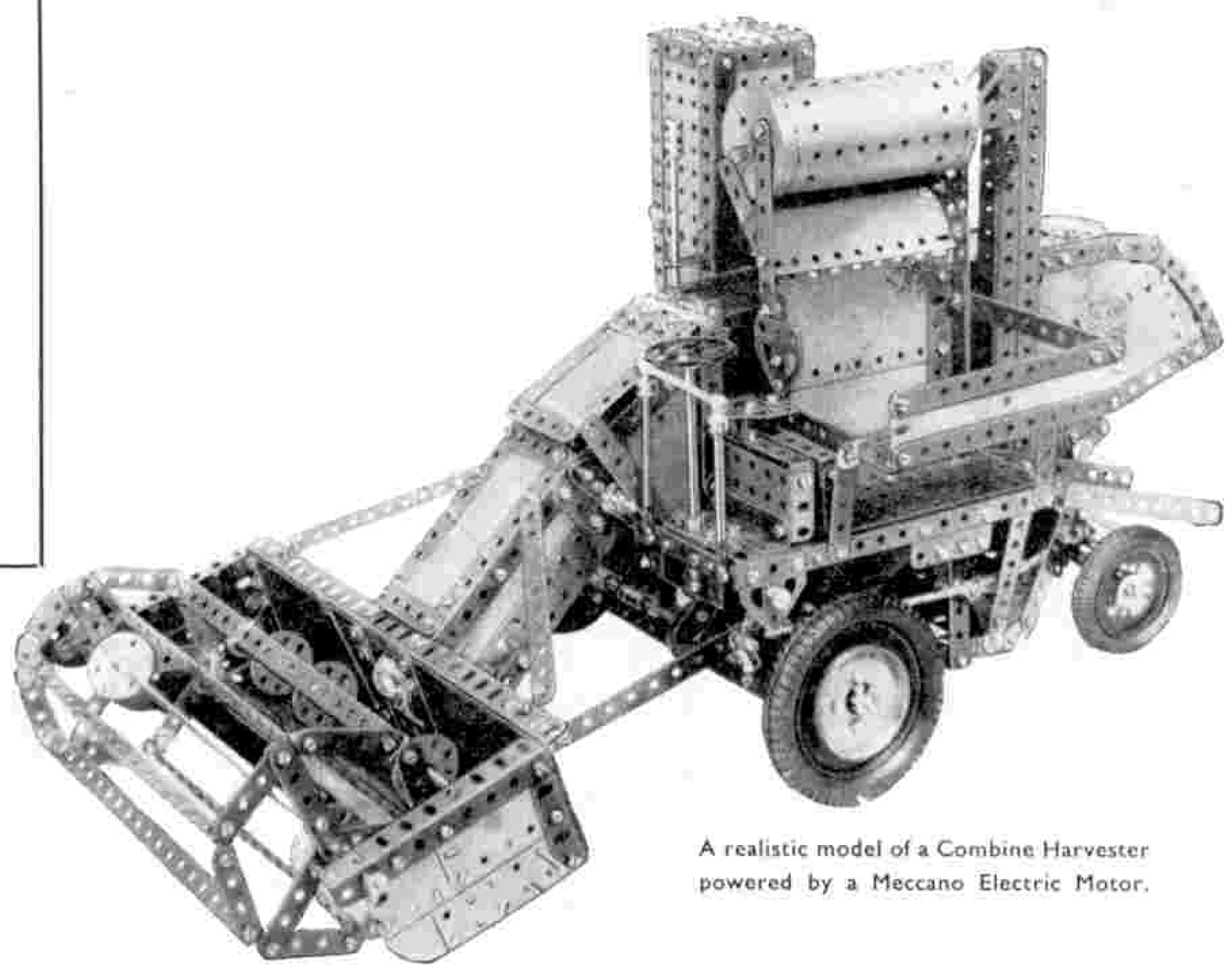

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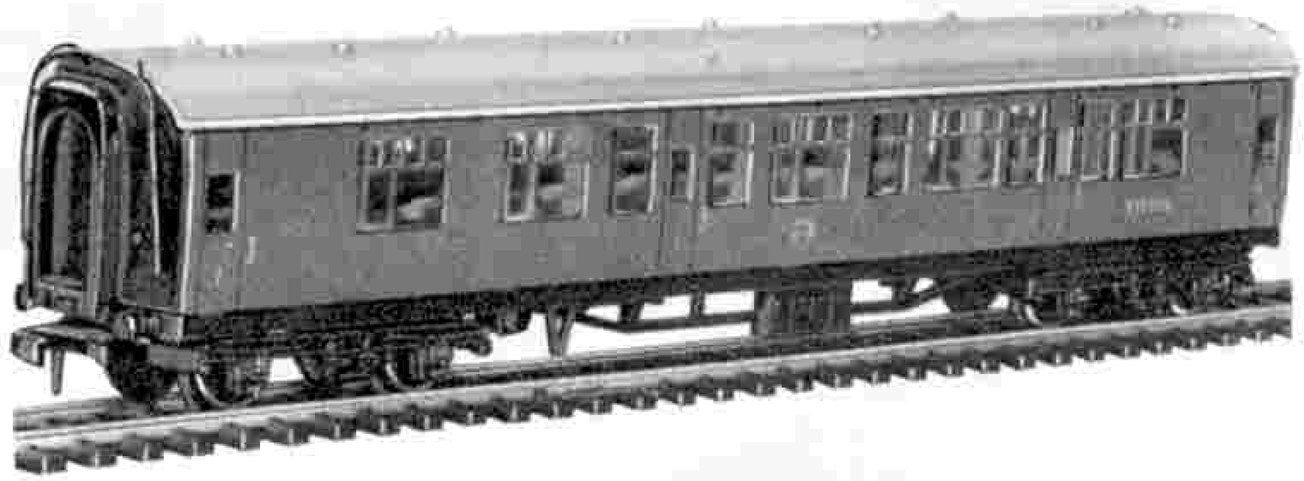

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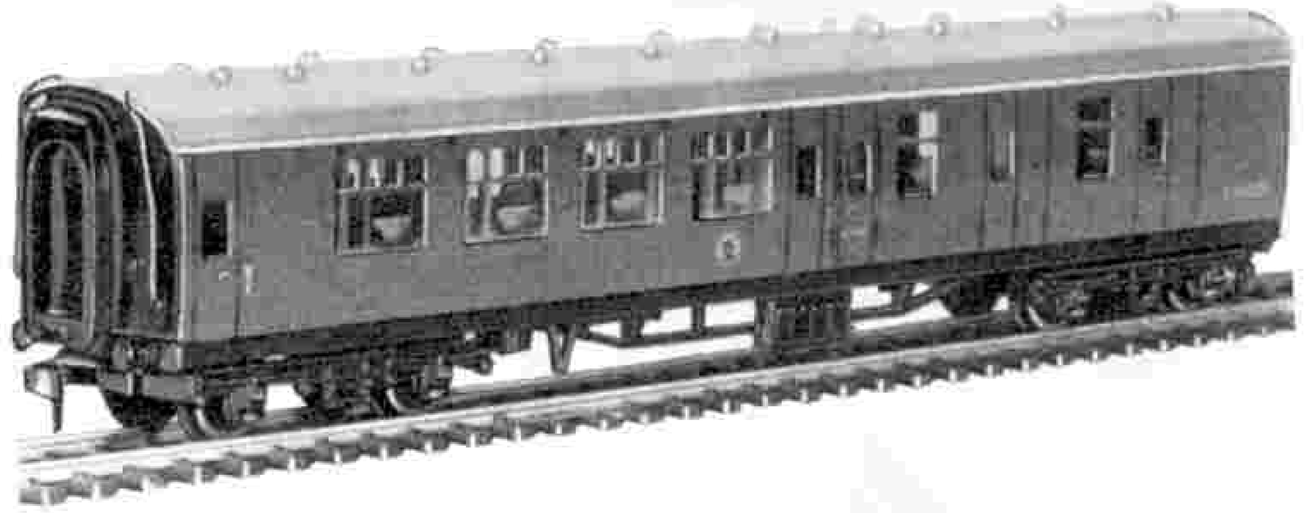

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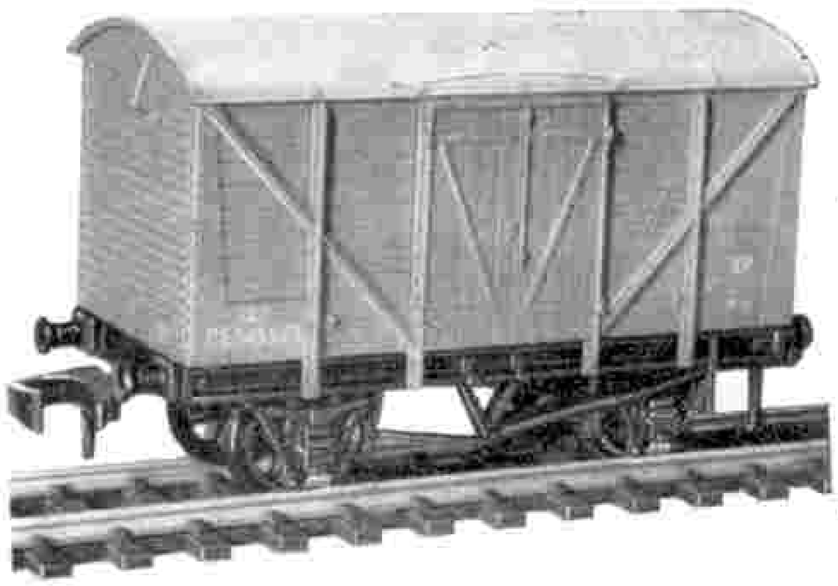

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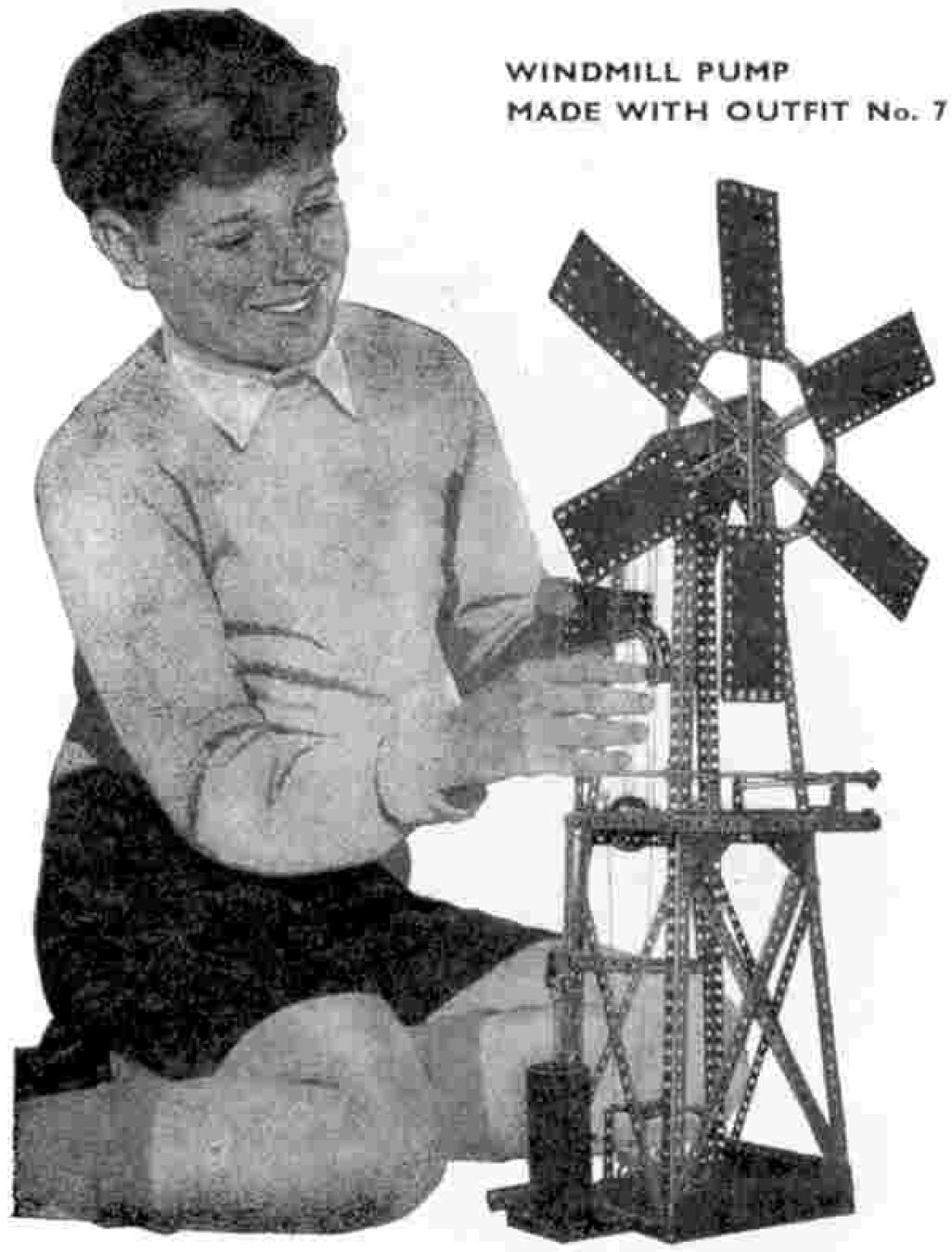

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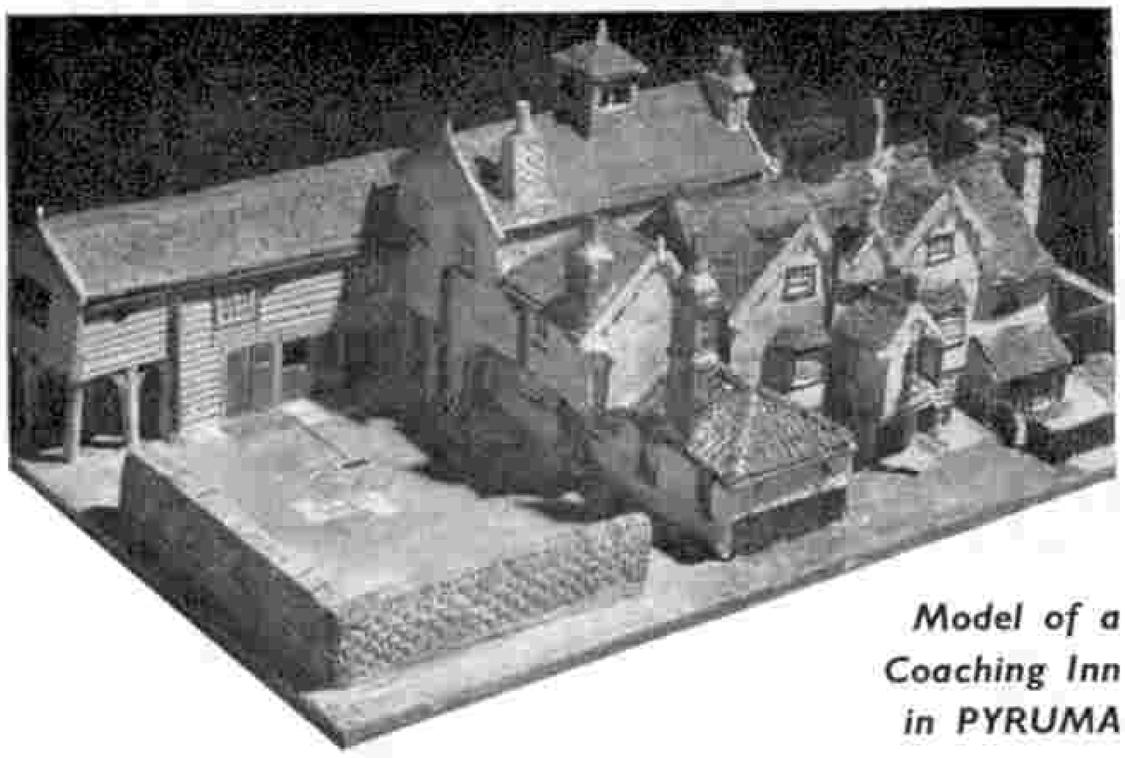

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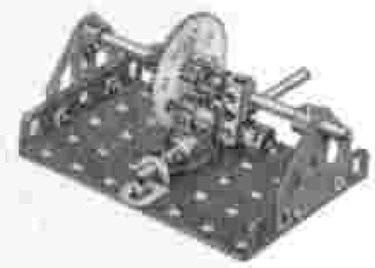

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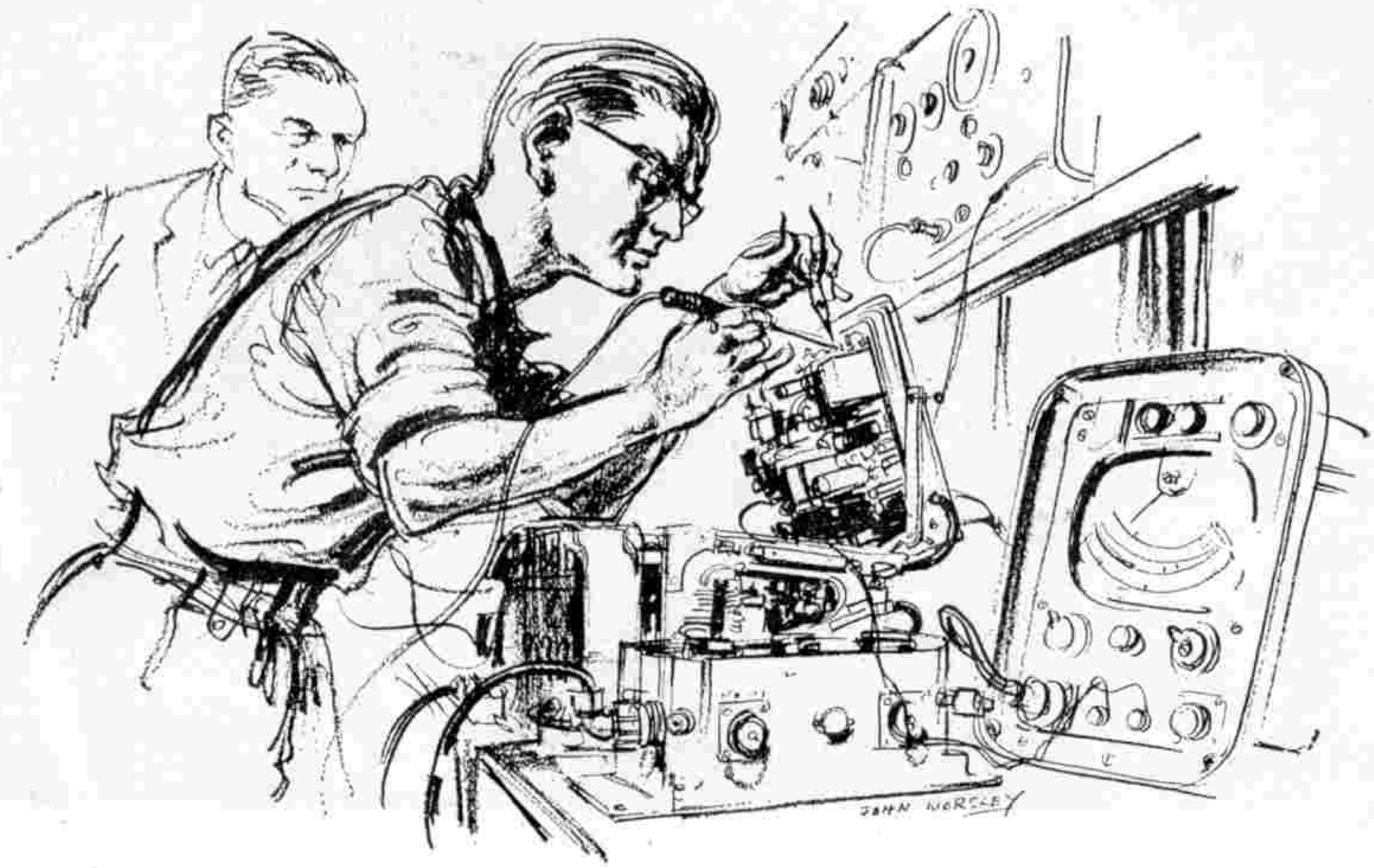

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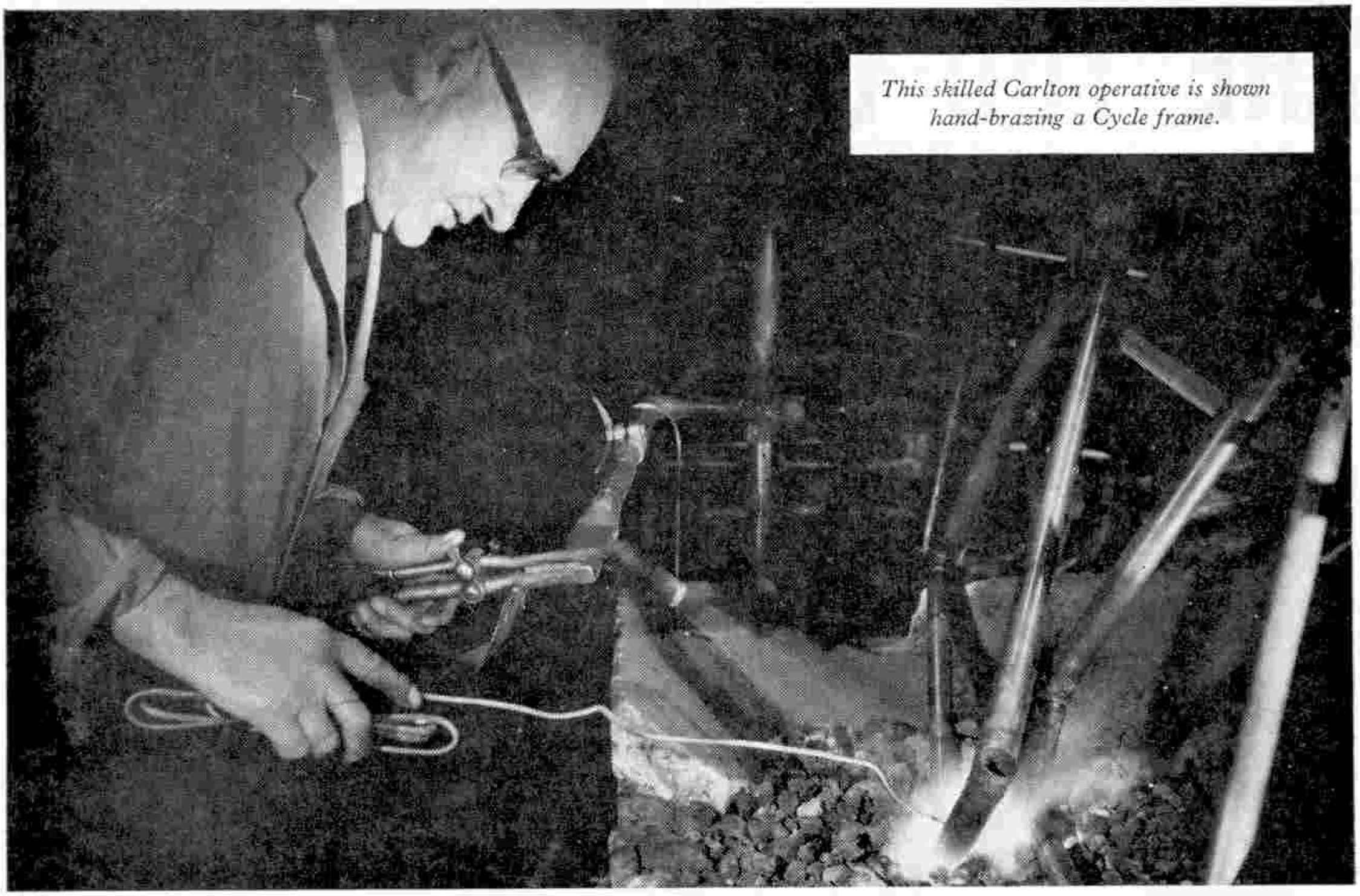

This skilled Carlton operative is shown hand-brazing a Cycle frame.

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MECCANO MAGAZINE

Volume XLVII No. 5 May 1962

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ERNEST MILLER

MOST *M.M.* readers are interested in road transport of one type or another, and I feel sure they will be particularly impressed by the latest decision of Ribble Motor Services, Ltd., of Preston, to introduce what Ribble describe as "a revolutionary development" in the service of full-course meals on coaches. I had the pleasure the other day of testing this service at a demonstration given by the company and very efficient it was, too. Ribble have for some time provided refreshments on regular long-distance routes; now they are introducing a full meals service on "Gay Hostess" coaches provided for party outings or operating on trips which will be known as "Diner-Coach" excursions. Lunch, for instance, is available as a three-course meal, served by smartly-dressed stewards and stewardesses whose neat uniforms have braided epaulettes. The meals are served on plastic trays with separate compartments for plate, cup and other containers and are prepared at the Ribble Company's Catering Department at Frenchwood, Preston, before being taken on to the vehicle and served from a well-equipped kitchen at the rear of the coach. The picture at the top of the page shows a meal in progress.

Mr. Peter Lewis.

Mr. Peter Lewis, whose photograph you see on the left, has for many years contributed *Road and Track* to the *M.M.* Readers will be sorry to learn that Mr. Lewis is no longer able to continue this duty. He has accepted a new position in the publishing world which will put a considerable demand upon his time and because of this has had to relinquish writing his highly popular causerie for the *M.M.* Mr. Lewis tells me, "I can honestly say I have enjoyed every minute of writing for the *M.M.* since my first motor racing contribution was published in 1953." I am sure we all wish him good fortune in his new post.

THE EDITOR

Next Month: A UNIQUE FRONTIER ROAD

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OUR FRONT COVER

Yachting is a sport that has been steadily growing in popularity over the last few years. The photograph on which this month's front cover is based was taken at Winsford, in Cheshire, on a stretch of water known as "The Flashes". It is an ideal spot for relaxation and people take their caravans, their cars and their craft along, often spending the week-end there. Wives and children are keen to join their husbands in sailing and to do many of the odd jobs that abound wherever there are boats.

Coaches With Bus Body Design, Locomotive With An Eager-To-Go Look: That's

THE G.M. AEROTRAIN

ONE of the most revolutionary trains in the world today is to be seen operating over the lines of the Chicago, Rock Island and Pacific Railroad. This streamlined, gleaming vehicle has ultra-modern carriages originally designed as buses, and is powered by a dramatically styled diesel-electric locomotive. It is known to railway enthusiasts all over North America as the G.M. Aerotrain.

When the new train is first seen rocketing across the flat countryside of Southern Illinois, one gets an overall impression of speed, power and watch-like precision. It rushes forward like a glittering metal snake,

By SIDNEY ALLINSON

then flashes past with a muted roar of diesels and clicking electric generators. Only after it is gone does one realise that its rakish, futuristic design has made the Aerotrain seem to be travelling much faster than its actual speed.

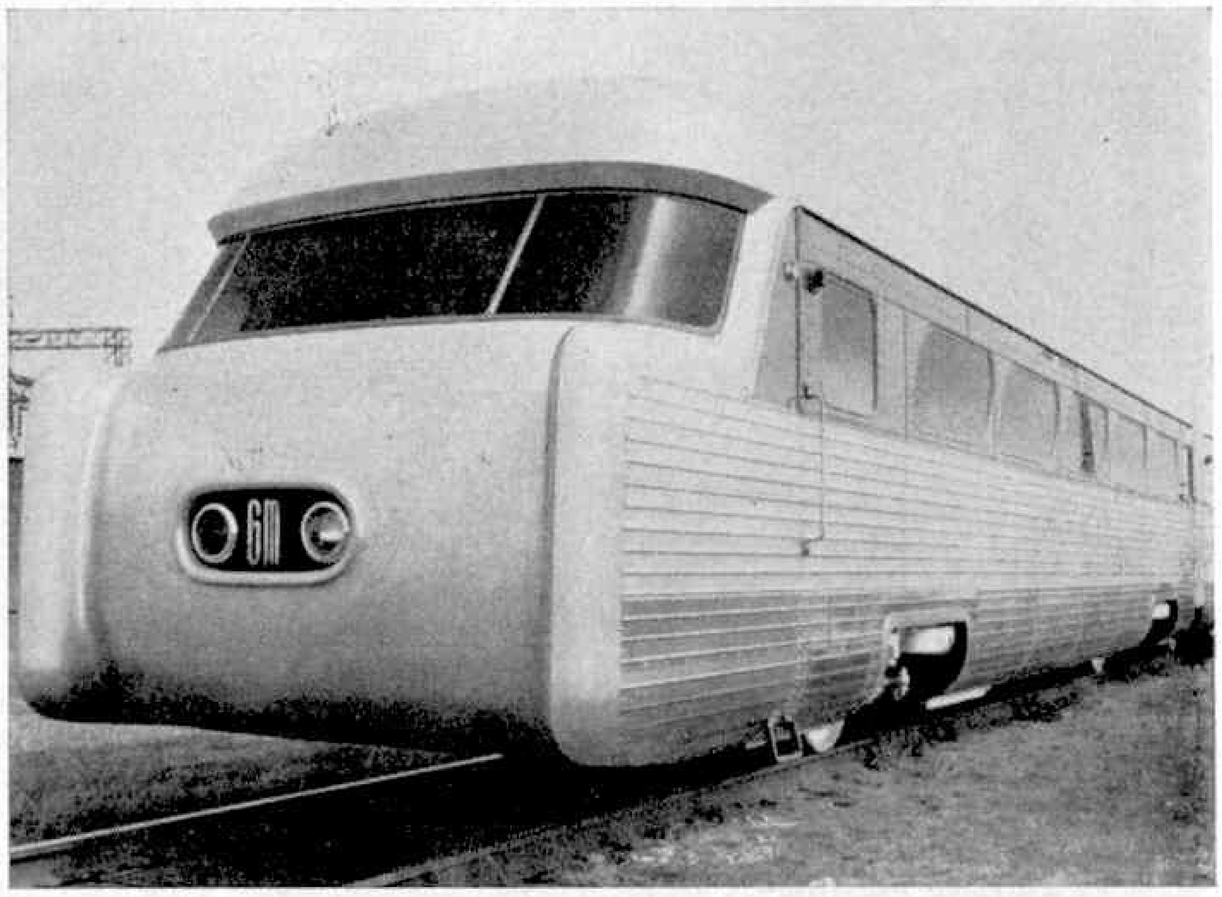
The concept of this experimental train grew from discussions between various railroad officials and designers employed by the Electro-Motive Division of General Motors Corporation, Detroit, Michigan. Concerned about the continued American trend away from rail travel, the railway officials asked G.M. vice-president N. C. Dezendorf for suggestions for new passenger-hauling equipment. New design features were requested that would reduce operating and maintenance costs, lower the centre of gravity and increase average speed. Such features would also improve riding comfort and make possible lower fares.

Because of its experience in the design and building of hundreds of gasoline-electric rail cars and diesel locomotives, Electro-Motive Division was in the position to solve the problem, and the project was soon undertaken.

When the challenge of designing the new train was presented to Harley J. Earl, G. M.'s styling chief, he accepted it with enthusiasm. In 1936, he was responsible for designing the G.M. Diesel locomotive which today is such a familiar sight on American railroads. And ten years later, Mr. Earl designed the Train of Tomorrow, with the Vista-Dome and other features which helped to establish present-day designs of American passenger trains.

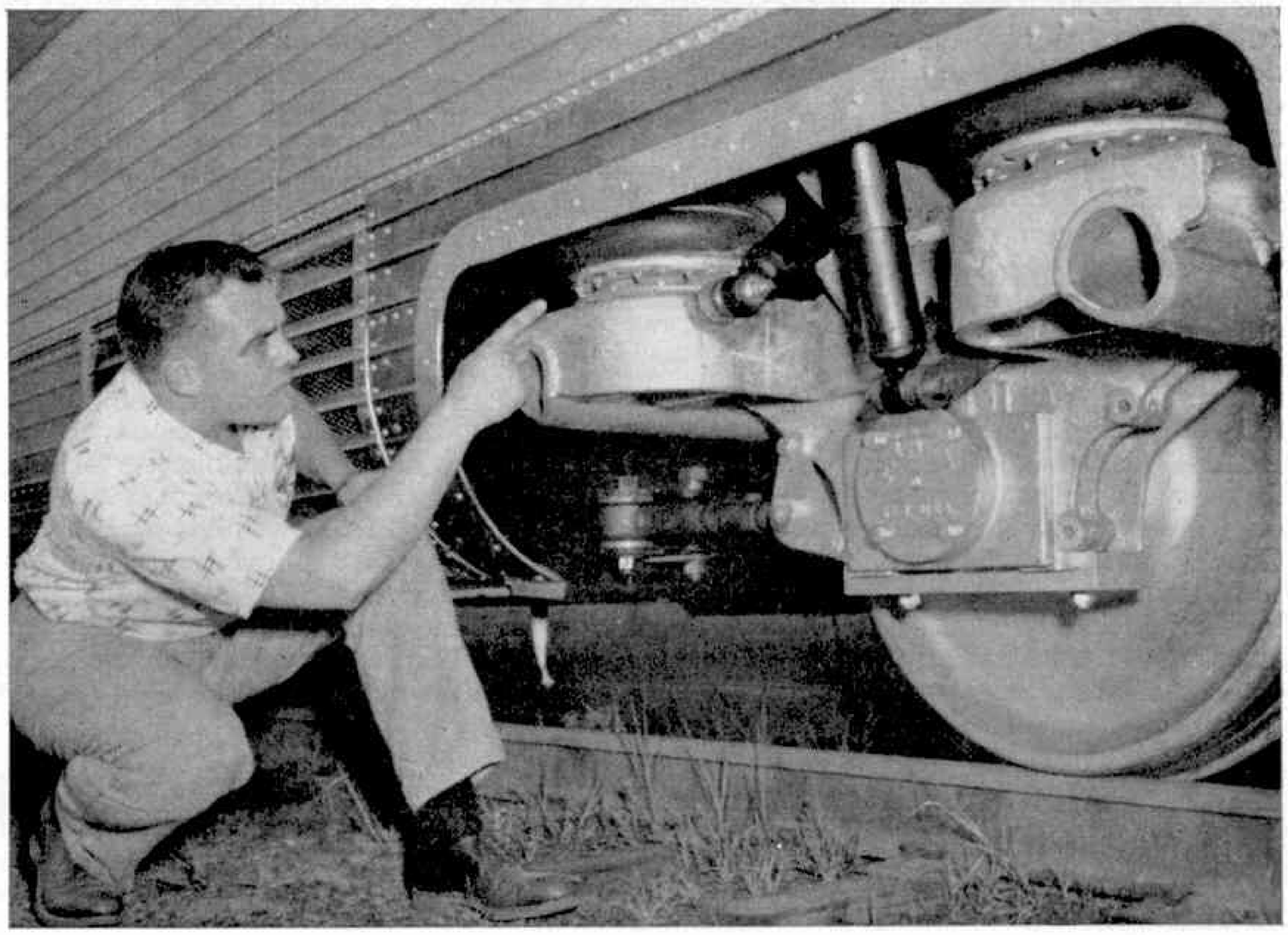
Teamwork between engineer and stylist was one of the major reasons why the development of the Aerotrain, from the initial idea to the finished running train, took less than twelve months—a remarkable record. A one-eighth scale layout of the train was completed from styling sketches. From this the Aerotrain was modelled in clay to one-eighth scale. Then full-sized drawings were made and from these the Aerotrain was built.

General Motors added another principle



A crisp, deliberate ending . . . the rear car of the Aerotrain.

Below: Conventional steel springing is eliminated. Rubber bellows filled with compressed air enable the passengers to "ride on air".



of its own to the requirements set for design of the new train, namely, that existing components could be used in the new locomotive and carriages. This method provided more economy because components were readily available, in mass production, with proven designs of widely-used items.

* * * *

As a result, the locomotive of the new train contains standard G.M. diesel engines, electro-motive generators, traction motors and control apparatus now used in thousands of locomotives throughout the world. The basis of the carriages is an adaptation of the present body of the G.M.C. 40-passenger long-distance bus —certainly the first time highway coaches have been used for train accommodation.

Most noticeable is the nose of the locomotive, which was designed to give the basic shape of the train a swift-looking start. Design of the last six feet of the train's rear car gives the Aerotrain's entire shape a crisp, deliberate ending. The mass on top of the locomotive houses the engineer's compartment and covers the diesel engine. The forward lean to the coach window outline also contributes to the train's eager-to-go look.

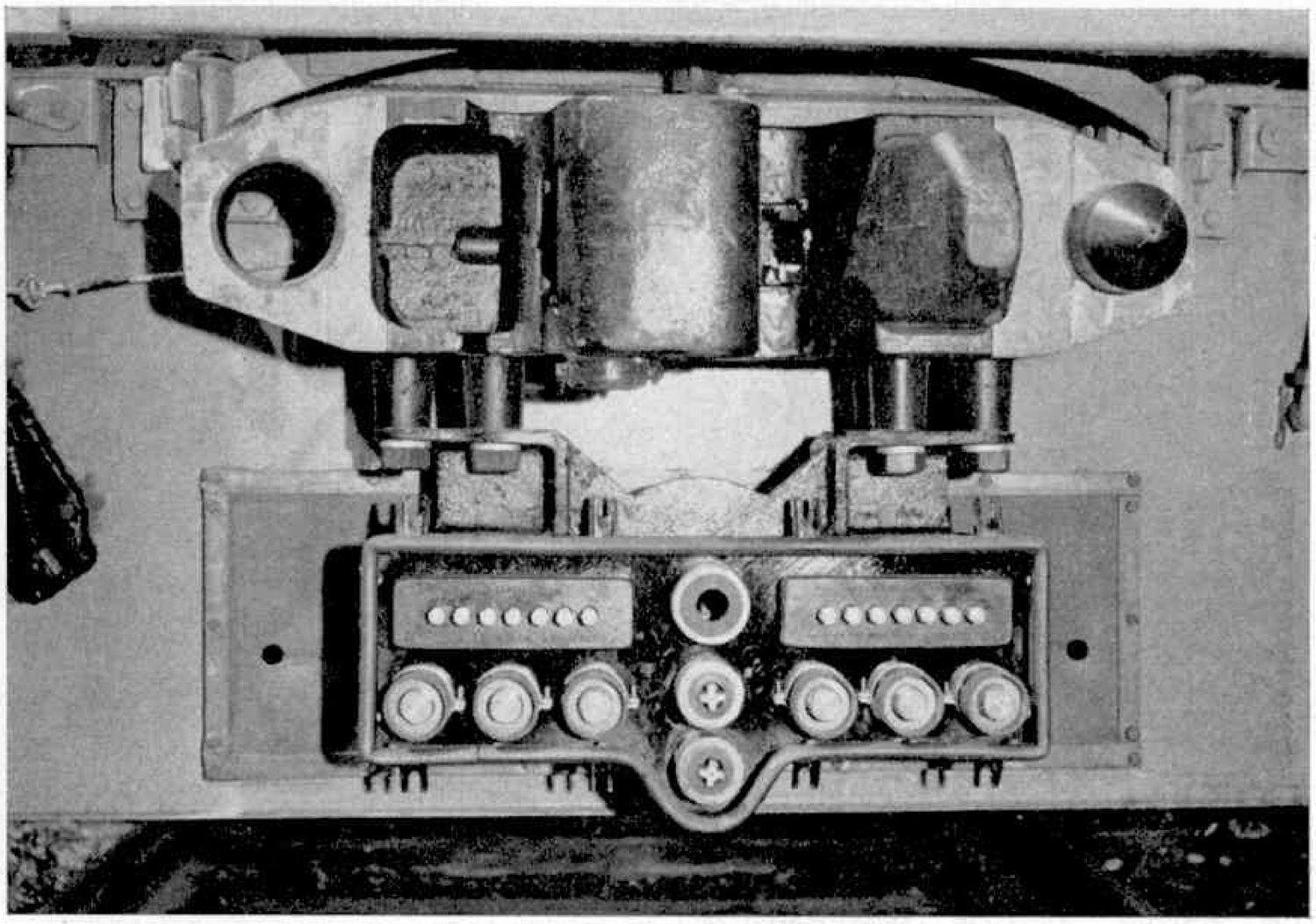
The locomotive, only 53 feet long and 13 feet 7 inches above rail in height, is powered by one 12–567C diesel engine, with 1,200 h.p. for traction. The front four-wheel truck is the driving truck with two traction motors. An idler axle with two wheels sustains weight at the rear of the locomotive. Two G.M.6–71 Detroit diesels in the locomotive operate Delco generators which supply current for the train's heating, lighting and air-conditioning.

* * * *

Geared for a top speed of 102 m.p.h., the locomotive is equipped with dynamic brakes. These give the train the economy of electric braking for controlling speed on long gradients. The low centre of gravity and the light weight of the Aerotrain permit much faster average speeds than those attained by more conventional rolling stock.

The new engine consumes approximately 1.3 gallons of fuel oil per mile at top speed with full load in level country. Each complete train contains seats for 400 passengers whom it can haul at 100 miles an hour with its one 12-cylinder engine. To duplicate this performance with present passenger coaches would require two of the same 1,200-horsepower diesels on a standard Model E9 high-speed locomotive.

The baggage compartment is under the floor of each carriage and the passengers ride at a high level which provides them with enjoyable views of scenery. Yet the centre of gravity of the cars is exceptionally low—45 inches above rail, compared with 55 inches in standard U.S. railroad coaches. The carriages are non-articulated,



The automatic coupling device (above) of the Aerotrain. As the "knuckles" join, contact is made for air lines, power lines and control lines.

Right: The interior of one of the coaches on G.M.'s revolutionary train.

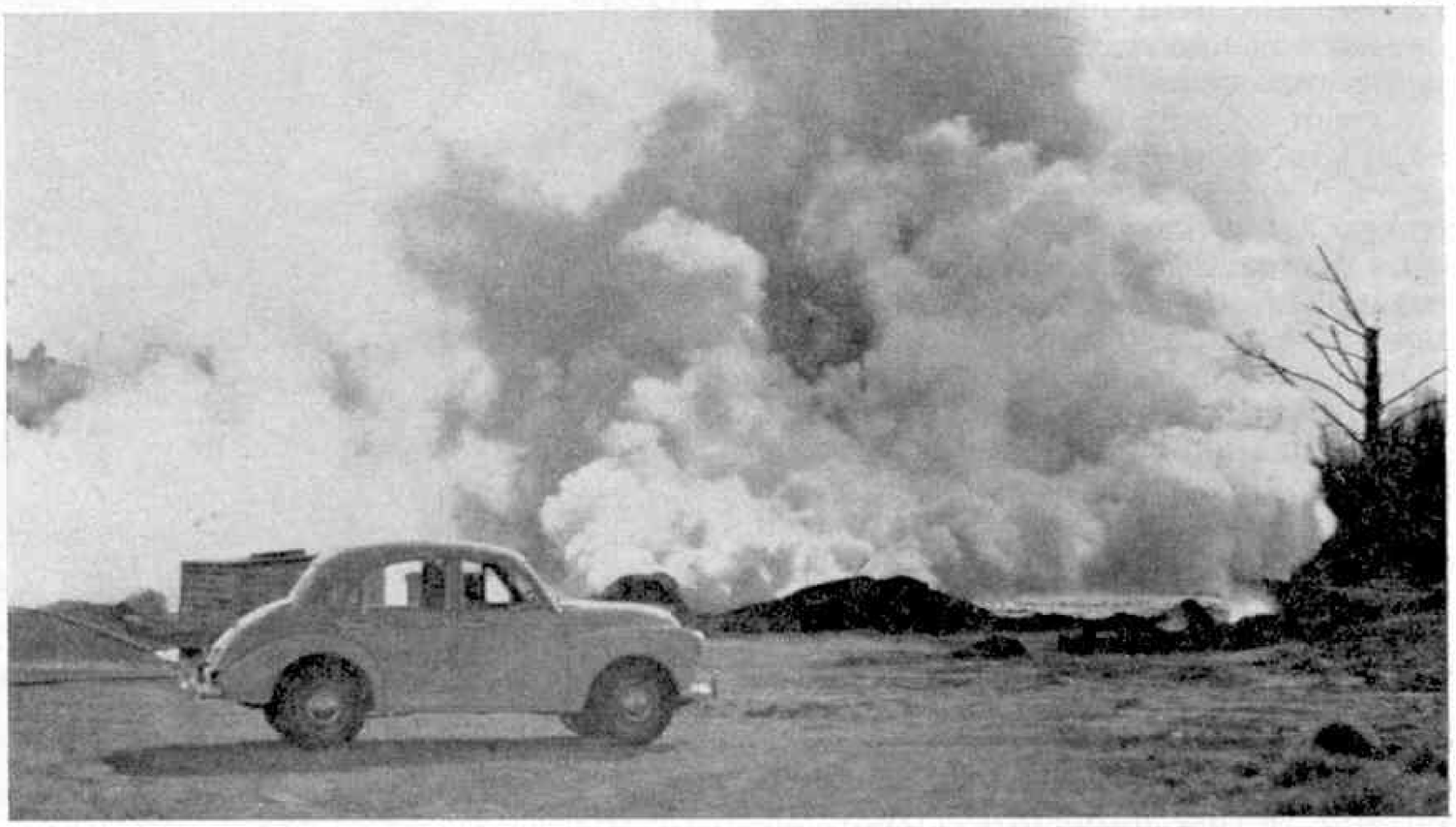
and are thus more readily assembled into a train than usual. This is because all connections are automatically coupled when the carriages are brought together.

The G.M.C. inter-city bus body design was adapted for the Aerotrain and widened by eighteen inches to give more comfortable seating space and a wider aisle in the new type of railroad coach. The driver and engine compartment spaces were replaced by vestibules. One car-end contains a toilet, and there is also a pantry for serving meals. The other end has a vestibule with entrances on both sides. The doors and steps are so arranged that the entrances can serve high or low station platforms. New riding comfort is provided by self-compensation around curves, so that the axle and the car floor are parallel. With this system, the passenger literally rides on air.

The Aerotrain experiment reached the final development phase when two identical Aerotrains underwent exhaustive tests in a series of demonstration runs on various American railroads. These tests took the G.M. train on thousands of miles of railroad service. Widely-varying operating conditions thoroughly proved the practicability of the new design and construction of the new trains. When the test programme was completed, these two unique trains were sold to the Chicago, Rock Island and Pacific Railroad and put into suburban service.

One of the designers of this exciting rail vehicle really felt his goals had been accomplished when he recently overheard a Chicago taxi-driver comment, while passing the Aerotrain on static display, "Boy, you just *know* that thing will get you there in a hurry!"

CREATING ELECTRICITY FROM NATURAL STEAM



Thermal bores in action at Wairakei, where work has been in progress since 1950.

FOR hundreds of years before the advent of the white settlers in New Zealand, some 150 years ago, the native Maoris watched in wonder and awe the famous Karapiti Blowhole sending forth its tall column of steam continuously day and night, year after year. In more recent times many thousands

By

V. MAY COTTRELL

of New Zealanders—and large numbers of tourists from all over the world—have been fascinated by this strange phenomenon and have speculated as to its cause.

According to scientific findings, the high pressure head of steam is the result of water coming into contact with white hot or molten rock deep down in the bowels of the earth. Many viewers must have thought with regret of the immense power running to waste at the Karapiti Blowhole, but it was not until a few years ago that any serious suggestion was put forth for the harnessing—for industrial use—of the power thus generated.

The first investigations at Wairakei were carried out by the Department of Scientific and Industrial Research. In 1950 work started with the drilling of 4-inch bores, and two United States oil-drilling rigs were later purchased for 8-inch production bores.

New Zealand's thermal region is about 150 miles long and 30 miles wide, consisting of some 2,000 square miles of "hot" country which is believed to be capable of exploitation. Wairakei, less than two square miles in area, was selected for investigation because it is the biggest convenient natural outlet in this thermal belt.

The Wairakei project is based on the tapping of a vast underground hot water system. The high temperature water flows through cracks in the ignimbrite up into the porous strata. Steam is obtained by drilling a bore which releases the terrific pressure of the very hot water, causing it to boil and produce steam.

Comparatively shallow test bores showed that the best steam could be obtained in the centre of the Wairakei area and large bores drilled down to 2,000–4,000 feet were then concentrated in that area. To date a total of 65 bores, including experimental and test bores, have been drilled. More than 27 of these have been harnessed and about ten are producing power. More are being brought into the scheme as time goes by, and each new addition to Wairakei's power house is a pioneering achievement, a victory over problems that are as new as the large-scale use of geothermal power itself.

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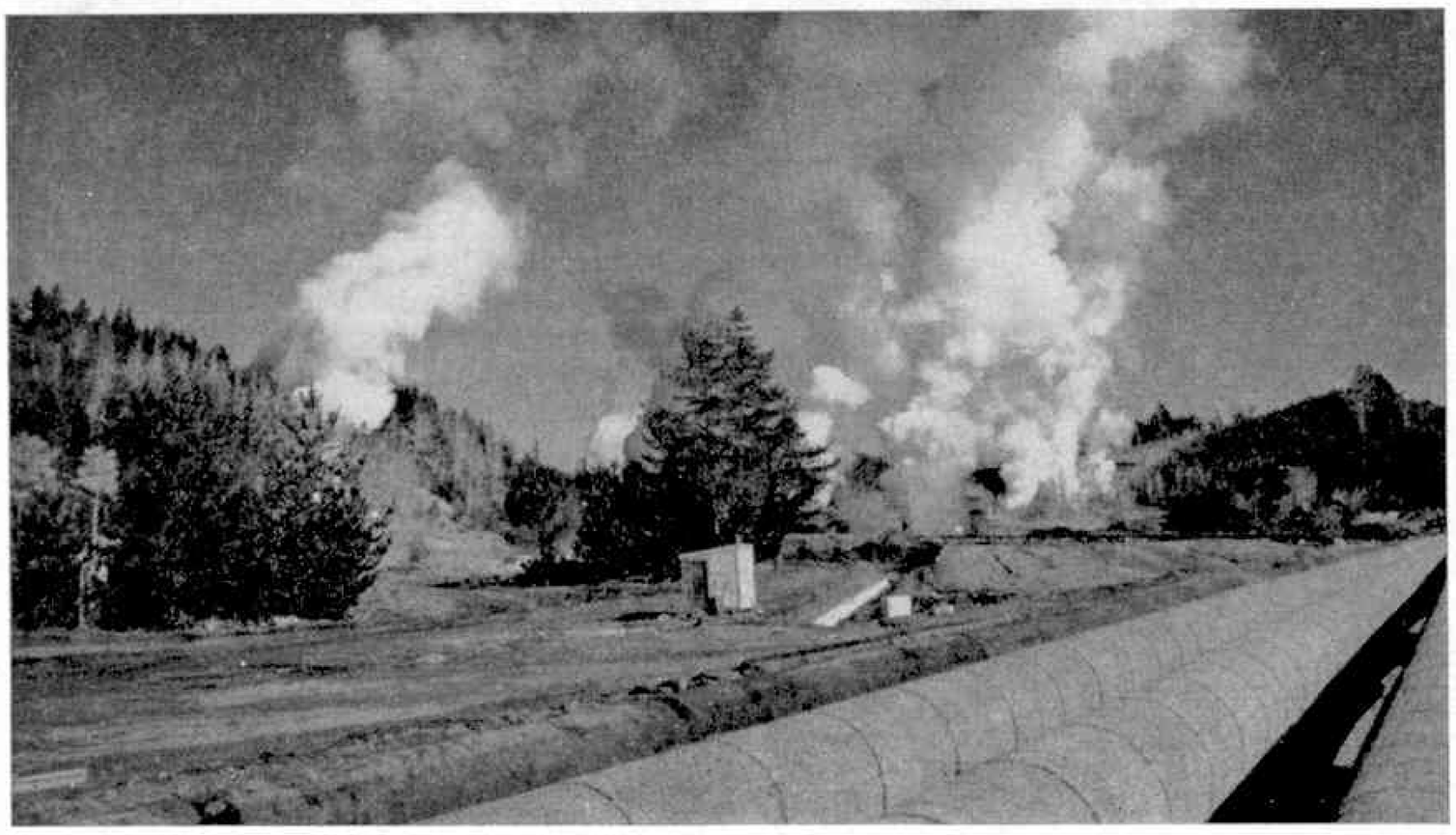
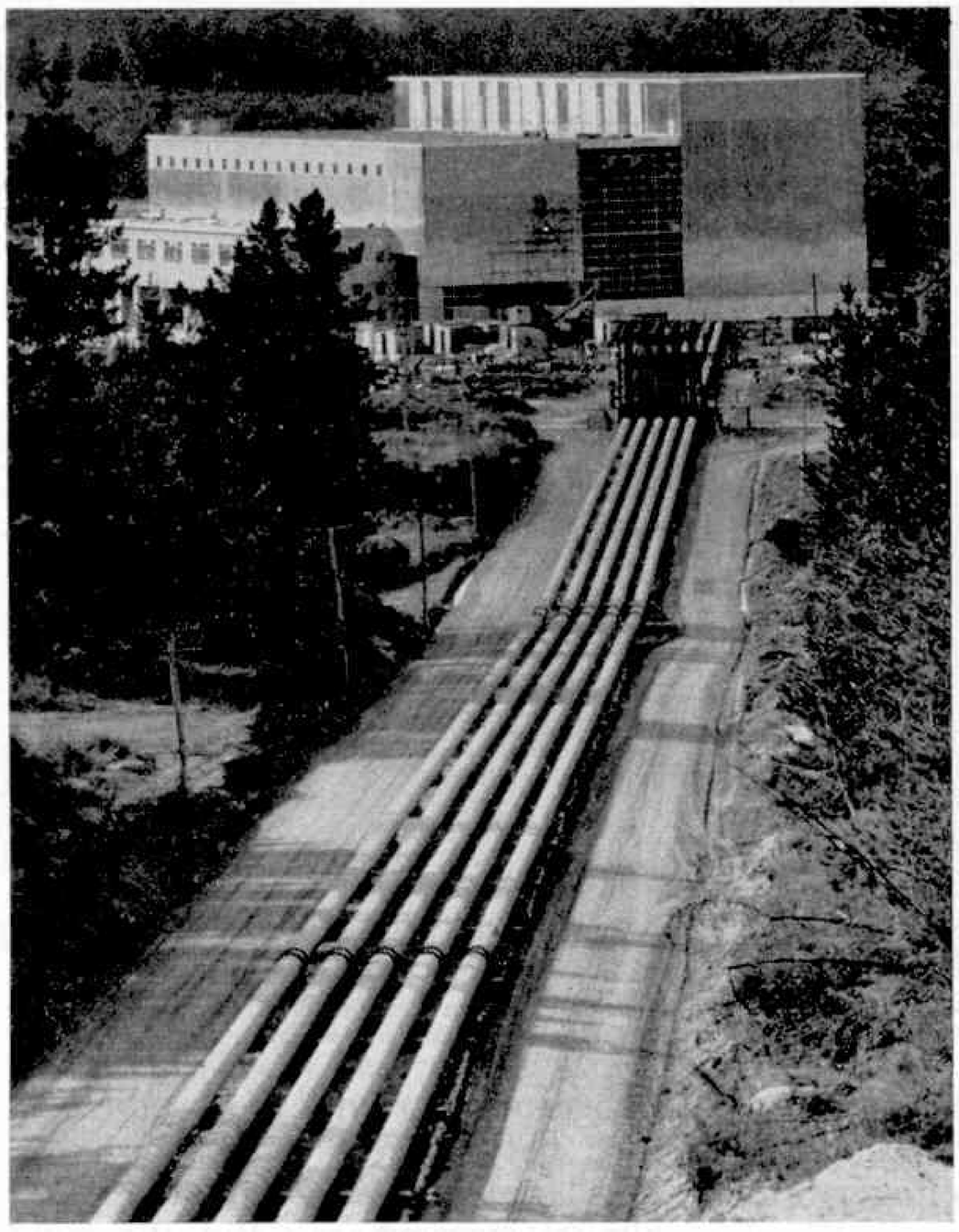
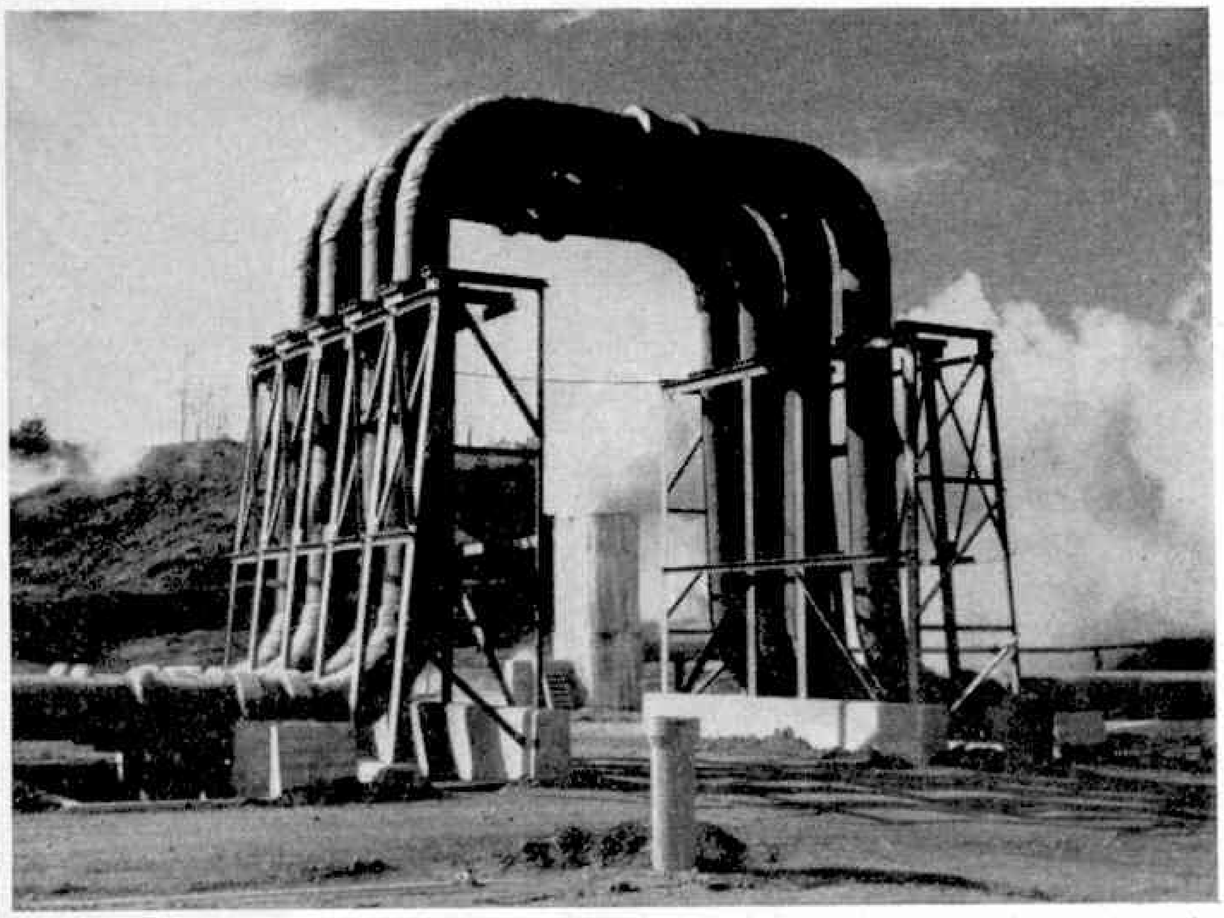
It is expected that this year Wairakei will be producing 150,000 kilowatts. In addition to this, the possibility of producing



A typical well-head scene at Wairakei. This picture, and the illustrations on the opposite page appear by courtesy of National Publicity Studios, Wellington, New Zealand.





Left: Five of the 20-inch main steam pipes to which steam from the wells is carried by means of branch pipes. Above: An expansion loop in the main steam pipe which crosses a roadway.

valuable chemicals, such as lithium, from the steam is being investigated by physicists and chemists. A plan is also being considered to supply Auckland and Hamilton with hot water for industrial and domestic use. So the taming of the reluctant dragon proceeds slowly but surely year by year.

The Wairakei geothermal steam power station is the first in the world to use natural underground steam direct from the bores to drive the turbines and produce electricity. For at Lardarello, in Italy, which was the first station to use natural steam in the production of power, geothermal steam is fed into a boiler and the steam thus purified drives the turbines. The bores at Lardarello produce dry steam, but the steam which emerges at Wairakei contains considerable quantities of water. It is, however, nearly as satisfactory as dry steam, although it involves separating the water from the steam before the latter is conveyed to the turbines.

* * * *

The amount of hot water contained in the steam varies considerably but the average ratio is one part of steam, by weight, to six of water. One particular well—or bore—produces approximately 1,000 gallons of water every minute. Thus the power potential of the hot water obtained is very great, amounting to perhaps 65 per cent. or more of the power potential of the direct steam. It is hoped to use some of this surplus hot water, eventually, for the generation of electricity.

The building to house this unusual power plant is known as Station A, and is situated on the left bank of the Waikato River. The building is 75 feet high, 200 feet long, and 200 feet wide. The condition of the ground thereabouts is such as to necessitate a raft foundation for the building, and a second station, to be erected later, will have a similar foundation sufficiently far away to avoid disturbance at its base. On a hilltop overlooking Station A a village has been built to house the permanent staff of operators.

The station receives steam from wells situated up to two miles away in the Waiora Valley, and the steam is conveyed from the wells by means of five 20-inch diameter heat-insulated steel mains having a total length of 44,000 feet. The steam is separated from the water by means of special equipment at the wells. Six, eight and twelve-inch branch pipes carry the steam from the wells to the 20-inch mains. Expansion loops every 1,000 feet along the mains are installed to compensate for their elongation when heated. At these points the pipes are looped about sixteen feet in the air and supported on a steel framework to allow for expansion at the bottom. The calculated expansion in the mains from the most distant well to the generating station is approximately 20 feet.

* * * *

From the mains the steam passes through the high-pressure turbines. It is then condensed to water and discharged into the Waikato River. The condensing process requires a relatively large supply of cold water, which is drawn from the same river. Because of the need for this large flow of water, the station itself is close to the river and not adjacent to the steam bores. A nearby pumping plant provides cooling water at the rate of 88,000 gallons a minute for the power station.

For the ultimate installation of 250,000–280,000 kilowatts a corresponding number of gallons of river water will be required.

It was a memorable day indeed for all concerned in this unique project when, in November 1958, a switch was turned to send—at 220,000 volts—additional power surging through the North Island grid system for distribution to consumers near and far.

This happy consummation of the scheme again demonstrated that great enterprises sometimes emerge from small and seemingly insignificant beginnings, for such was the case at Wairakei. The experimental stage of the undertaking has now been passed—its difficulties, dangers, disappointments and frustrations have been largely overcome, and the harnessing of geothermal steam for power purposes is now an accomplished fact. But ardent and enthusiastic planning and working still goes on for the generation of electric power by this means on a very much more extensive scale.

* * * *

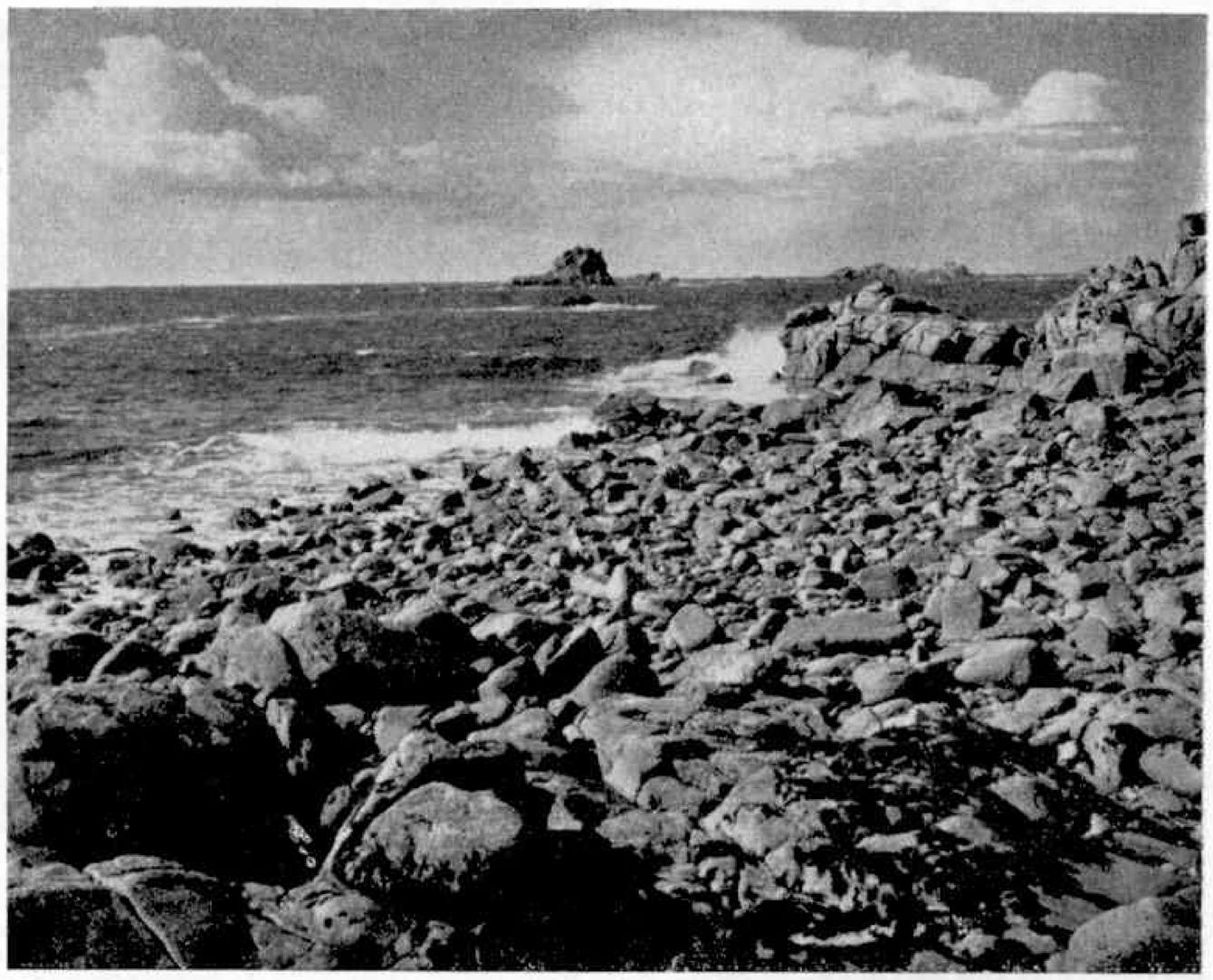
When I last visited Wairakei some of the steam bores were bellowing with demoniacal fury which made sleep in the vicinity practically impossible. From the main road near the Wairakei Hotel, where I was staying, the bores presented an awe-inspiring sight—innumerable great columns of white steam soaring hundreds of feet into the air. The accompanying roar was comparable to that of a squadron of jet planes being throttled up for a take-off, or a great railway station at its peak hour—and this in spite of the fact that the bores are fitted with silencers!

These great steam bores with their immense power hold a menace for the unwary. They demand (*Cont. on page 216*)

A VISIT TO SEAL ISLAND

By

L. HUGH NEWMAN



The boulder-strewn beach of Seal Island over which the parent seals slithered and flopped as the author and his companions approached the baby seals.

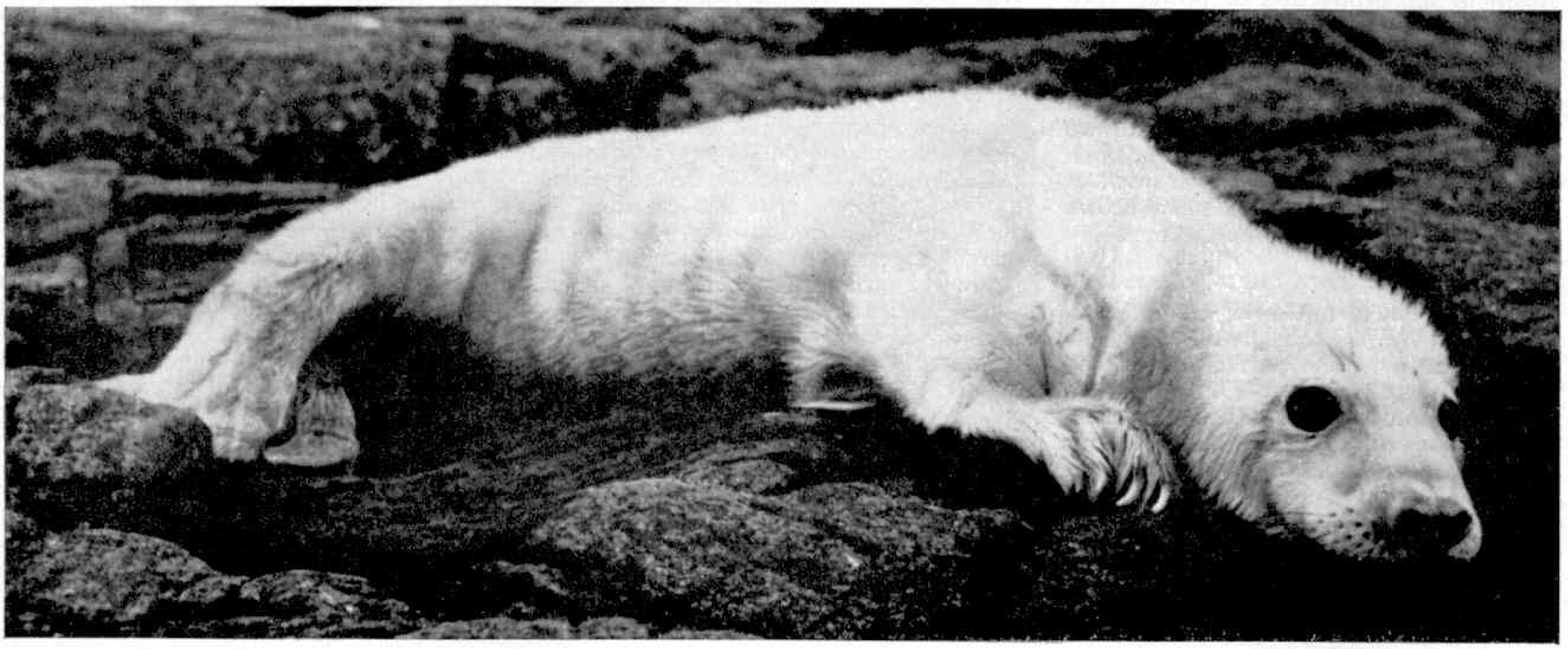
ONE of the many attractions to visitors staying on the Isles of Scilly is the chance of seeing baby seals at such close quarters that you could stroke them if you wished. Let me hasten to say, however, that you would be most unwise to take such a liberty, because even when they are are only a few days old seals have very sharp teeth and, unlike cats and dogs, do not like to be stroked or patted!

That great naturalist, Dr. Ludwig Koch, with whom I have broadcast on the B.B.C., tells a story of how a young student who was helping him to record the voices of baby seals on Skomer Island, off the Pembrokeshire coast, went into a cave to investigate. He found a baby seal there and while trying to persuade the little creature to come out into the light, by tugging at its flipper, nearly had his finger bitten in two.

You will have to be patient if you wish to see seals in the Scilly Isles. This group of islands is notorious for its heavy swell and is the worst area for wrecks round our coasts. The fishermen who take you out to Seal Island will not be hurried or rushed; they wait until it is calm enough to land safely and, although the sea may look all right to you, they know better. There are dangerous currents that surge and race between the smaller islands, and large rocks that dot the water almost everywhere. But the right day will come at last, and away you will go—with a fully-loaded camera, if you are as keen on photography as I am.

* * * *

On my visit, the motorboat chugged between Tresco and Bryher in comparatively calm waters and for a quarter of an hour I could not imagine where the danger could lie. Then we rounded the rocky headland on Bryher and I realised how right boatman John Jenkins was to bide



Below: One of a pair of new-born Atlantic seals discovered by Mr. Newman—who took the pictures shown here—and his friends during their visit to Seal Island.

his time. Even though the surface was smooth, the water piled up against the jagged rocks and dropped away again many feet lower, a ceaseless rising and falling of great masses of incredibly blue water. And I was not imagining the colour, for it is well known that the sea round the Scilly Isles lacks the plankton normally found in coastal waters. So it is that on a fine day the greenish shade is missing, and you have this wonderful effect of brilliant blue.

We were out in the open sea now and the swell brought waves licking right up to the gunwhale. Even though I am a fairly good sailor I was thankful there was no wind to whip up the breakers. We could see Seal Island in the distance—a great, untidy pile of rocks bare of vegetation except for lichens and a few stunted green plants between the stones. We were heading for the eastern side of the island as in this way we could land without being seen by any seals which might be sunbathing on the rocks on the far side.

It was rather early for seal calves and I knew that on the Farne Islands the babies are not usually born until November, and here we were hoping to find them in mid-September. But I had been told that in the Scillies the seals start to breed earlier, and John Jenkins thought we had a good chance of finding calves. We dropped anchor a little distance from the shore and clambered into the dinghy to be rowed ashore by John's son, while John's grandson, a lad of about twelve, helped him to tidy up on board before they, too, joined the party on shore.

* * * *

A great pile of granite rocks, some 80–100 feet high, shut off the south-western side of the island where the seals had their nursery. I set off, camera slung round my neck, and climbed the shelving rocks that were rather like a giant's staircase. On rounding the corner the sun struck right into my eyes and the silvery sea far below dazzled me for a moment.

I could see nothing except a great mass of boulders of all shapes and sizes, mostly covered with seaweed and above them a long shelf of smooth rock. Here and there pools reflected the sun like mirrors. And then I heard a curious growling noise and saw movement. High up above the water line a cow seal had spotted us and by her side I could just distinguish two whitish "blobs". At that distance, you could not tell what they were!

The mother seal turned her head this way and that as others of our party came round the headland. She seemed to hesitate for a few moments and then, to my amazement, began to lumber away, taking the shortest cut to the sea. It was an ungainly performance, rather undignified in its haste, and in my opinion most cowardly, for we soon discovered that she had left behind a pair of twin calves that could not have been more than two or three days old.

There must have been other seals down near the water, so well camouflaged that I had not noticed them, for as soon as the mother seal started her retreat we heard more flapping and splashing among the boulders. In a few moments, heads began to bob up in the sea some yards from the shore. At a distance they looked like so many floating footballs but, of course, I knew they were seals, for every now and then one would disappear and then come up again, looking rather like a fat old colonel taking a cold dip.

Later, as we circled the island and saw the seals, at close quarters, bobbing up through the waves, I noticed what big solemn eyes they had and how sadly they seemed to stare at us before sinking down out of sight again. It made me feel as though I had no business to be there at all, and that I was an unwanted trespasser.

Now our attention was turned to the babies. From the moment when their mother decided to abandon her calves they began to wail and cry. I do not think I have ever heard a more pitiful sound, it was so loud and plaintive. And the further away their mother went, the more the calves cried. More than once she turned her head, so the distress signals must have touched her, too, but on each occasion she paused only for a moment, then disregarded their appeal.

Yet the babies did not seem frightened of us; in fact, they were decidedly aggressive. They lunged and snapped at me as I tried to get a close-up photograph and the noise they made was something between a growl and a bark. The skin on their bodies was flabby and puckered, like a puppy's, and we knew they could not be more than a few days old. Soon they would be sleek and fat, for seal milk is so rich that the loose skin quickly fills out tight with blubber and the fur, which at first is rather long and curly, and of a white or creamy shade, becomes blotched with grey. Even at this early age the calves weigh about 30 pounds.

On the approach of humans, the parent seals left their babies high up above the water line and retreated to the sea. If you look closely you can just see two baby seals as white dots in the centre of the picture.

Some distance from the two newborn babies we found another—older—calf which already had a sleek, dappled grey coat and was not so conspicuous. It was much more agile, too, and a great deal shyer. When we approached, it tried to get away and finally flopped into a large rock pool and refused to come out while we were close at hand.

* * * *

We spent about half an hour with the seals, taking photographs and watching them as they shuffled about on the rocks. White hairs were floating on all the rock pools and when we moved a little distance away the two young babies began to roll themselves in a very shallow puddle of water on the almost flat rock. They seemed to enjoy getting wet, and I imagine this bathing hastens the shedding of the light-coloured baby coat.

Young seals do not normally venture into the sea until they are about a month old, and even then they do it rather reluctantly. Few people have ever seen a mother seal coaxing her baby into the water and teaching it to swim, but those who have tell us that the young seal needs quite a lot of help and instruction before it can master the art of moving through the water in the right way.

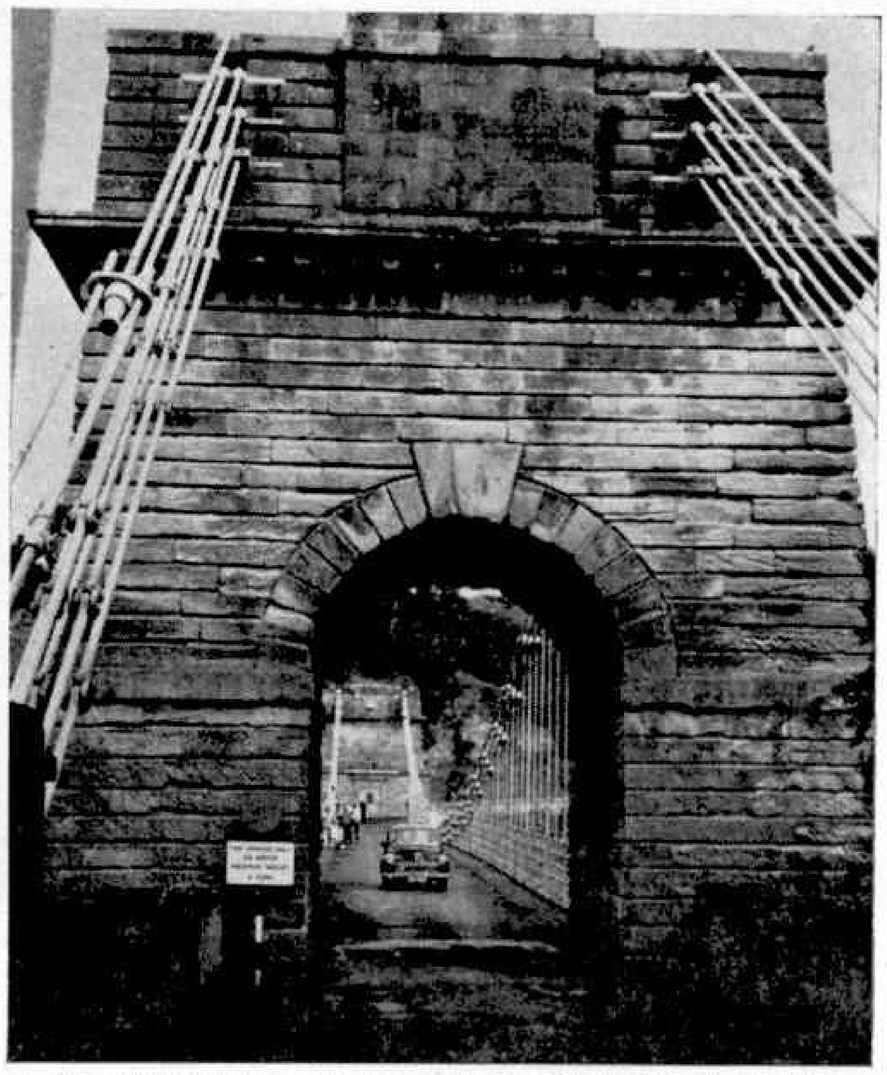
Certainly the mortality rate among young seals is very high, and that is not surprising when you see the rugged rocks on which they live. My visit to Seal Island was made in lovely early autumn weather, but by the time the youngsters would be old enough to venture into the water the autumn gales would have begun to blow. To start life in the sea when the breakers are boiling and surging round the islands is a dangerous initiation indeed. Usually Nature arranges things so that young creatures are born at a time of year when the weather is reasonably fine and calm, but baby seals arrive when we expect wild and windy weather.

Britain's First Big Suspension Bridge

By Geoffrey N. Wright

ALTHOUGH Telford's magnificent Menai Bridge is regarded as the finest and most famous of the early suspension bridges in this country, it was not the first large-scale structure of this type. In 1820, nearly six years before the Menai Bridge was opened, Captain Samuel Brown had completed the Union Chain Bridge across the River Tweed, five miles from Berwick. This was the first big suspension bridge to be built, all previous suspension bridges in Britain being suitable only for pedestrians.

Captain Brown (he was subsequently knighted) lived from 1776 to 1852, and, as a sailor, had good opportunity to advance his engineering interests. He invented the chain cable, then used by the Royal Navy, and in 1817 patented the wrought-iron link. It was this discovery in engineering technique which eventually led to the development of bigger suspension bridges.



A view through the pylons, on the Scottish side of the Union Chain Bridge.

The Union Chain Bridge was built extremely quickly, an obvious economical advantage which was stressed by its inventor when discussion arose over what type of bridge the local Turnpike Trustees should erect over the river. The foundation stone was laid on August 2, 1819, and the bridge was opened with great ceremony on July 26, 1820.

The Tweed here forms the border between England and Scotland, and its two banks are very different in character. That on the Scottish side rises relatively gently from the water, but the English bank is a steep cliff face, and on this side the approach road runs parallel to the river for some distance.

Two stone pylons carry the twelve chains from which the main bridge platform itself is suspended. The English pylon is built flush with the cliff face, into which the chains passing over the pylon are deeply fixed. The Scottish pylon is quite free-standing, and the chains passing through it are embedded some distance behind it in the ground, additionally secured there by two stone pillars.

The bridge platform suspended between the two stone pylons is 361 feet long and 18 feet wide, but the overall span of the complete structure reaches 449 feet. The suspension chains hang in pairs, three parallel pairs one above another, on each side of the bridge, making twelve chains altogether. Each chain is made up of a number of separate links—wrought iron bars fifteen feet long and two inches in diameter, with an open "eye" at each end. Flat plates bolt the bars together, and these bolting plates not only hold the chain links together lengthwise, but also join each chain to its paired partner laterally. Support is thus given in two directions at right angles.

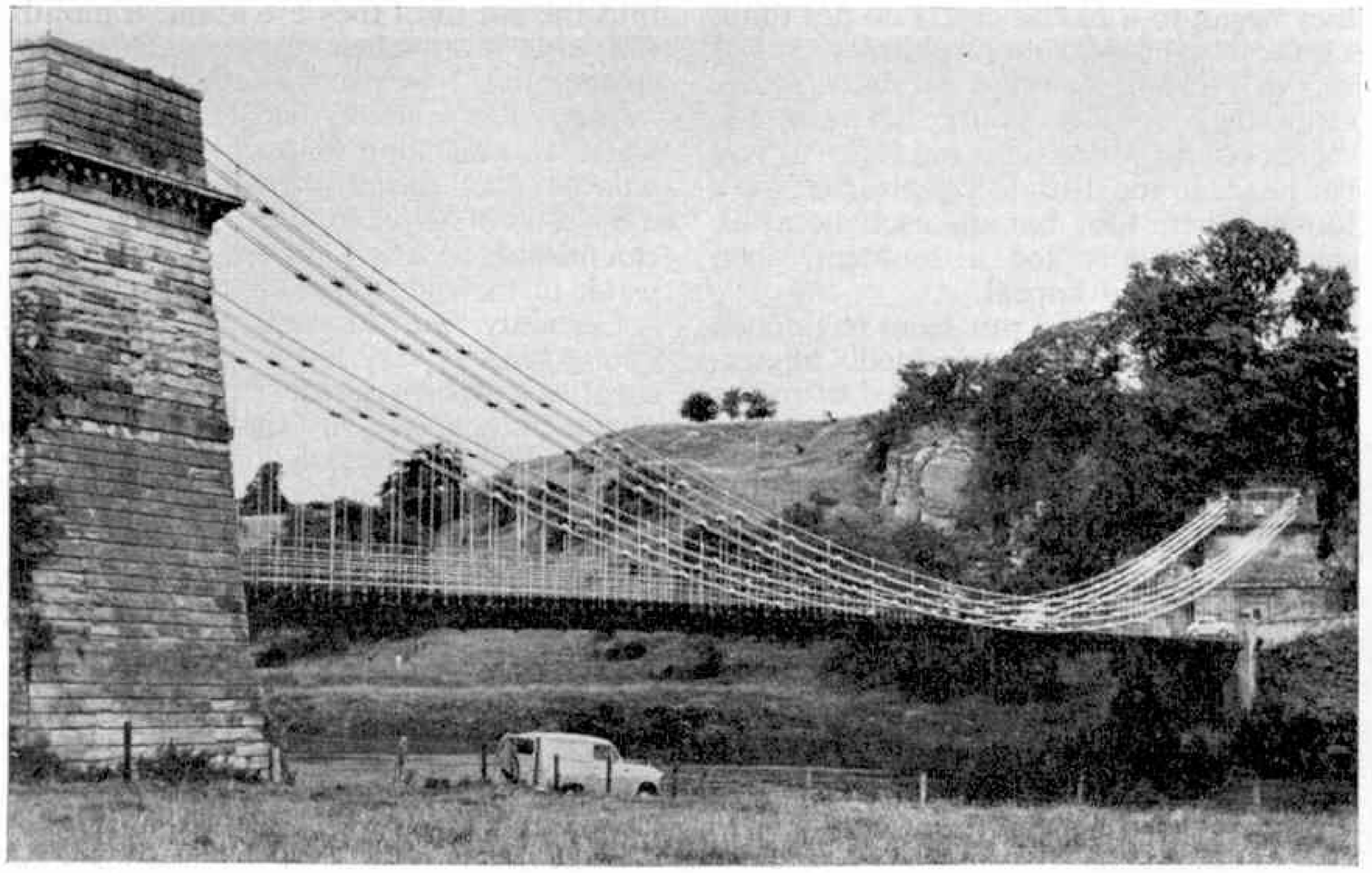
Above each of these bolted junction points are the cast iron saddles into which are fixed the top ends of the vertical metal bars, of one inch diameter, which themselves carry the main bridge platform. These supporting rods hang alternately from each row of parallel chains, thus ensuring a very even distribution of the load carried, every chain carrying an equal part of the whole. The bridge platform is of wood with iron plates on it.

When it was built, at a cost of £7,700, it had been originally thought that it could bear a load of 360 tons, but this turned out rather an optimistic figure! Now, a warning notice states that the weight limit is two tons, and only one car at a time is permitted; in any case, it is not wide enough for two vehicles to pass. The bridge has twice been repaired and strengthened, in 1871 and 1902, when an extra metal cable was put on each side of the bridge, above the existing chains, to give more support. It was freed from toll fees in 1883.

After the early success of the Union Chain Bridge, and the Menai Bridge, other suspension bridges were built, but Brown's chain cable was superseded by the metal cable which was used in subsequent bridges of this type.

Sir Samuel Brown later built chain piers at Leith and Brighton, as well as other bridges.

A general view of the Union Chain Bridge taken from the north-west and looking across the river. The photographs illustrating this article are by the author.

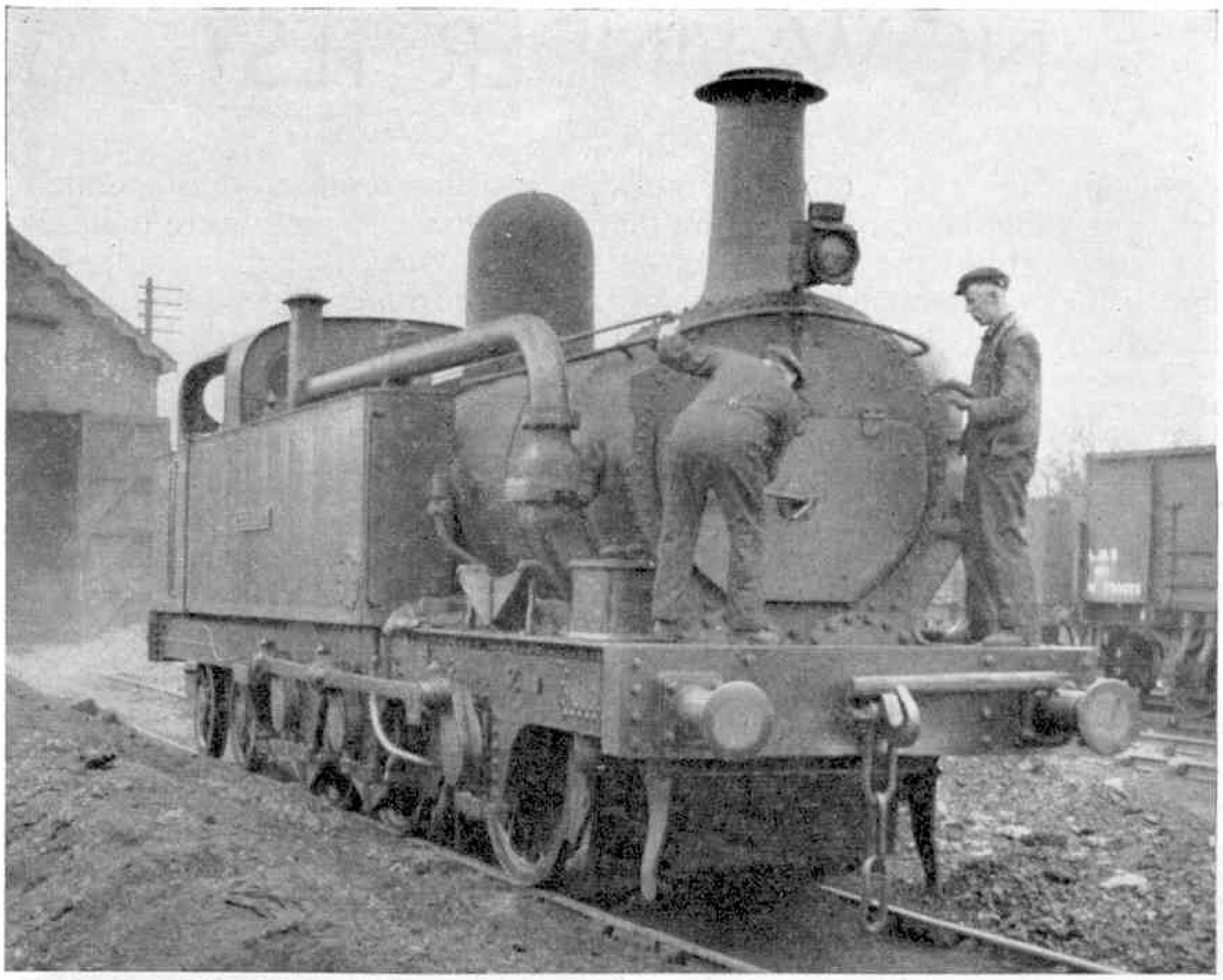


Present-day passengers on the Mersey Railway, that important under-river link between Lancashire and Cheshire, travel by fast electric train. But in the early days of the century, steam trains made the journey. This article recalls those bygone years.

A TANK ENGINE GIANT OF THE PAST

A TRIP through the Mersey Railway Tunnel in steam days was, as I can clearly remember, quite an awe-inspiring experience. It was at its worst when foggy weather upset the ferry services on the river and hundreds of people, who normally dreaded the trains, unwillingly added to the crush to get to and from their work.

BY R. S. McNAUGHT



The locomotive "Cecil Raikes" pictured when in service with Shipley Collieries. Photograph by courtesy of J. P. Wilson.

The low-level stations, although much loftier than those on London's Underground, were perpetually filled with smoke and exhaust steam. From the low wooden platforms—always greasy and wet with condensation—the glimpses you got of the engines through the murk made them look really vast. They had open cabs and the glare from their furnaces was reflected and magnified by the pall above. This was added to by vertical spouts of steam from the outlets of their condensing gear, the functioning of which seemed out of proportion to the massive glittering pipes with which every engine was encumbered. In the murk it was very hard to tell what colour the engines and carriages were painted, and only a close inspection, difficult on the crowded platform, would have ascertained the engine name, although the numbers could often be made out.

This inferno-like state of the stations was mainly due to their siting at the top of the lengthy climbs out of the under-river section (with grades of 1 in 27 and 1 in 30) resulting in the drivers of incoming trains having to blast their way with wide-open regulator to a quick and jerky stop.

In the crowded coaches (then the ordinary compartment type) the travellers endured a hardly less awesome experience. The downward dip to the middle of the tunnel was taken at full tilt to gain impetus for attacking the corresponding up-grade, and the powerful tank engines, with little, six-coupled wheels impelled by cylinders of no less than 21 inches diameter by 26 inches stroke—then the biggest on any railway—gave vent to a powerful exhaust beat which rattled the carriage windows and drummed in one's ears like the take-off of a modern jet plane, only in much more confined space!

On certain trains to which were coupled Great Western parcels vans and through coaches between Paddington and Liverpool Central (Low Level), two of the ponderous Mersey tanks were attached, with correspondingly greater sound and visual effect.

When the line was mercifully electrified, in 1903, its stock of eighteen steam locomotives was auctioned and found ready buyers, for the engines were not only well maintained but were still well in advance of current designs for their particular class of job. Colliery concerns in Australia bought four of the original 0–6–4T batch, and one or two were still in steam during the 1940's. Three more went to the South Wales docks, eventually being taken over by the G.W.R., and were scrapped between 1923 and 1927.

The remaining pair of this class—not to be confused with the Mersey Railway's second string of nine 2–6–2's with outside cylinders—were sold to the Shipley Collieries, near Ilkeston, Derbyshire, which also owned a pair of antique ex-North London 4–4–0T's. All Mersey stock was named, and the Shipley pair were originally No. 5, *Cecil Raikes*, and No. 8 *Birkenhead*. The latter was broken up in 1925 and some of its fittings were used on its partner.

More than 28 years later it was found that *Cecil Raikes*—still bearing the original nameplates and ponderous condensing gear of tunnel days—was in regular use. Apart from having an all-over cab and a somewhat workaday stove-pipe chimney in place of the tapered Beyer-Peacock pattern of Mersey days, and a very different and much gayer livery, the 1885 engine was hardly changed.

Thanks to the co-operative spirit of the National Coal Board (who took over the Shipley Collieries), *Cecil Raikes* was stored with a view to permanent preservation when it was decided, in 1956, to work the coal trains between Coppice and Woodside Collieries by diesel power. The locomotive was taken to the old Midland Works at Derby for restoration. Its ultimate home is likely (*Cont. on page 216*)

THE VALUE OF FLOATS

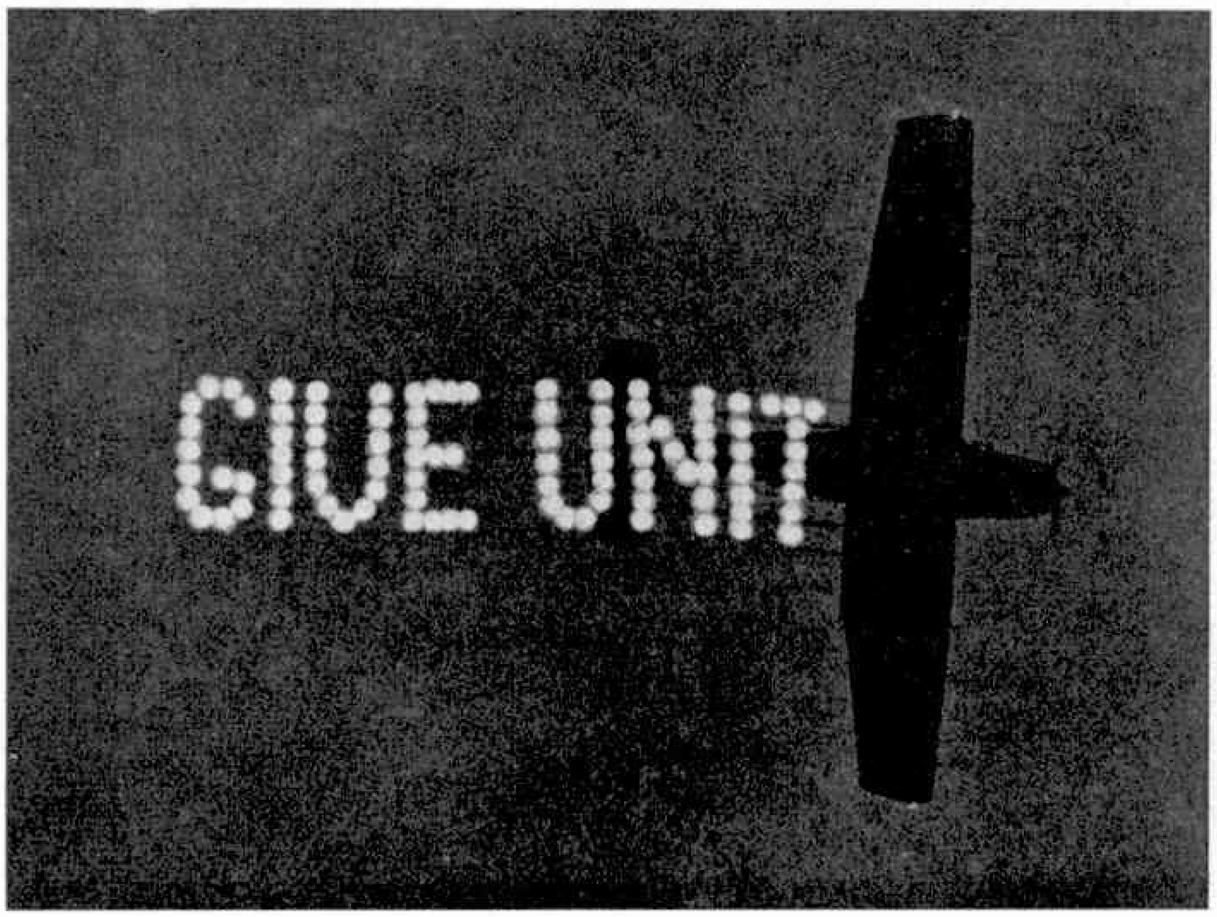
BABY SEAPLANE IS NOW UNDER TEST

BACK in the 1930's, many long-distance airline services were operated with flying-boats. Then came the war, and aerodromes were built all over the world by the air forces of both sides. When the fighting stopped, the airlines were able to make use of these aerodromes and soon replaced their flying-boats with landplanes.

There are, however, many countries where water-based aircraft are ideal for local flying. In Canada and the United States, forest fire fighters can often get to grips with a blaze more quickly by using a seaplane to land on lakes in regions where there are no airstrips. Many readers may recall how I described aerial activities of this kind in my article "The Flying Fire Engine" in the January 1961 *M.M.* Private pilots also find small float-planes useful in places where there are stretches of sheltered water, as these aircraft avoid the expense of maintaining airstrips and offer a quick and comfortable way of getting to favourite hunting or fishing grounds.

Because of this, Piper Aircraft are now testing a seaplane version of their little four-seat Cherokee lightplane. Illustrated on this page, it is exactly the same as the landplane version except for its Edo floats, and is powered by the usual 160 h.p. Lycoming 0–320 engine. Piper say they will put the seaplane into production only if there is a good-sized market for it. There should be, as the Cherokee is one of the lowest-priced and easiest-to-fly all-metal lightplanes in its class.

The Cherokee all-metal, low-wing seaplane fitted with Edo 89-2,000 floats seen during an experimental flight test made from Piper Aircraft's Vero Beach plant.



Getting the message across! A Cessna Skyhawk used for "Nite Lite" advertising.

AIR NEWS

By

John W. R. Taylor

FLYING GREENGROCER

Jet airliners spend most of their lives whisking passengers to exciting places, so it may surprise readers to learn that one of Qantas' Boeing 707s recently became a flying greengrocer's van.

The idea was not entirely new. Australian exporters have been sending small shipments of fresh fruit and vegetables by air to Noumea, in New Caledonia, since last summer. As a result, Noumean greengrocers did not think it strange to order fresh stocks from wholesalers 1,000 miles away when they ran short of supplies.

Qantas' air cargo experts wasted no time, and 600 cases of apples, pears, plums, cherries, asparagus and mushrooms, weighing nearly eight and a half tons, were soon being loaded into a waiting jet-liner. The Boeing took off from Sydney Airport at 11 o'clock in the morning, and delivered its outsize fruit salad two and a half hours later, in plenty of time to fill Noumean housewives' shopping baskets on the afternoon of the same day.

The operation was so successful that seven or eight tons of produce are now being flown from Sydney to Noumea every week. To keep freight charges as low as possible, Qantas are helping to design special lightweight packaging for the fruit and vegetables.

NITE-LITES IN THE SKY

Most of you have probably seen "travelling headline" signs, in which news or advertising messages flash across a framework of hundreds of twinkling bulbs. But you would almost certainly rub your eyes in disbelief if you saw such messages moving high across the open sky at night. Yet this rather startling development has been witnessed by people who live in the eastern cities of the United States—and it has nothing to do with flying saucers. The picture on this page gives the game away, as it shows a message being towed by a Cessna Skyhawk lightplane. It is, in fact, the latest idea in aerial advertising, devised by a company named

It takes a real expert to know the meaning of some of the designations given to American military aircraft, such as P2V–5F or JC–130B. But even the experts were puzzled when the late Frank Smith gave his little Miniplane sporting biplane the designation DSA–1. When questioned, Smith confided with a smile that it meant "Darn Small Aeroplane".

Re-Vue Agency of Kingston, Pennsylvania, and is known as the "Nite-Lite".

As the Skyhawk flies over a city, its pilot extends the sign electrically under the aircraft. He then flips a switch, and a message recorded on electronic pre-punched tape is flashed across the rows of bulbs attached to the sign framework. The message travels across the sign at about 24 words a minute, and tapes can be changed in flight in less than a minute.

The sign weighs about 70 lb. and has little effect on the aircraft's flying characteristics. It is mounted on the main undercarriage and tail tie-down fitting, and draws its power from the Skyhawk's 35-amp. generator. When the pilot wants to land, he simply retracts the sign, which folds itself neatly under the aircraft's fuselage.

AVRO 748s FOR THE R.A.F.

Airliners do not usually have to take off from churned-up airstrips of the kind shown in the upper illustration on this page; but there was a very good reason why the Avro 748 should prove its ability to do so on January 29 this year.

The R.A.F. was looking for a new light transport able to carry troops into forward combat areas, and the 748 was sent to Martlesham Heath to show its paces in front of senior officers of Transport Command, the War Office and the Ministry of Aviation. They watched it manœuvring, taking off and landing in deep mud, the highlight of the tests being a take-off with one of the two Rolls-Royce Dart turboprops stopped while the aircraft was carrying a load of nearly five and a half tons.

Three weeks later it was announced that a military version of the Avro 748, known as the 748MF, has been ordered for the R.A.F. It will differ from the airline version mainly in having an upswept rear fuselage, incorporating a loading ramp for vehicles, and more powerful Dart RDa.12 engines, each developing nearly 3,000 h.p. These engines will enable the 748MF to operate from unprepared strips only 1,500 feet long, and to carry up to 48 fully-equipped troops, 40 paratroops, a Ferret scout car or three Land Rovers at a cruising speed of 270 m.p.h.

In front of senior officers of Transport Command, the War Office and the Ministry of Aviation, the Avro 748 (top picture) reveals its capabilities in deep mud. Below: Hovering over Texas Tower Number Three, 62 miles off the New England coast, is a Boeing-Vertol 107 which managed to land on the tower's small platform in 40 m.p.h. crosswinds.

It is expected that the initial contracts will be for about 40 aircraft, but the R.A.F. will want about 100 Avro 748MFs eventually to give the Army the mobility it needs.

A DOUBLE CELEBRATION

The outposts of North America's air defence radar warning system are a number of off-shore stations, called Texas Towers, in the Atlantic. Built on the Continental Shelf, they are supplied by the helicopters of the U.S.A.F.'s 551st Air Base Squadron from Otis AFB, Massachusetts.

One of the squadron's main tasks is to fly in relief crews to man the towers. Since one tower was swept away by heavy seas, the squadron has also been given the task of evacuating all crews when gale-force winds are expected. This happened last December, and when the danger passed the weather remained too bad for the squadron's single-engined Vertol H–21s to venture out over the 62 miles of open sea to Texas Tower Number Three, off the New England coast.

Fortunately, a Boeing-Vertol 107 twin-turbine helicopter happened to be at Otis at the time, on a demonstration tour, so it was used to ferry out the twelve tower personnel. The task was not easy, as the 107 had to land on a small platform on the tower in 40 m.p.h. crosswind gusts. But it was done satisfactorily, giving double cause for celebration as it was the 2,000th flight made to a Texas Tower since the 551st Squadron began the work on December 18, 1955.

EJECTORS SAVE 500 LIVES

In May 1949, test pilot J. O. Lancaster catapulted out of the cockpit of a crashing flying-wing research aircraft, still strapped in his seat. He then dropped free of the seat and made a safe landing by parachute, so becoming the first pilot ever to use a Martin-Baker ejection seat in an emergency.

Since then, Martin-Baker seats have saved the lives of well over 500 airmen, and the total is increasing at the rate of about two a week. Ejections have been made at heights from ground level to more than 50,000 feet, and at speeds ranging from a few miles an hour to well above the speed of sound.

Forty-one countries (*Cont. on page 216*)

SPACE NOTES

Further Survey Of The Satellites

By J. HUMPHRIES, B.Sc.(Eng.), A.M.I.Mech.E., A.F.R.Ae.S.

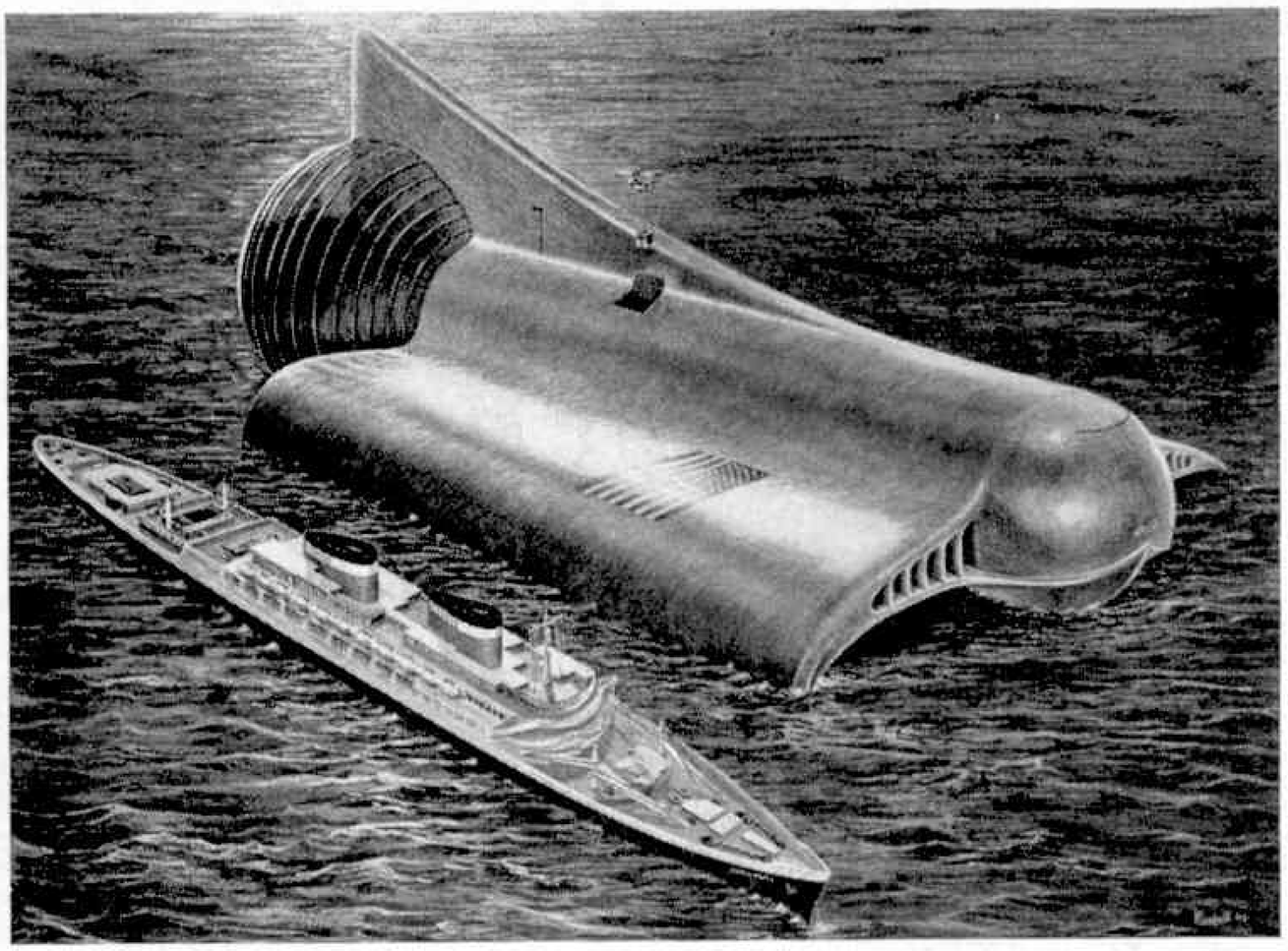
THE last time I surveyed space vehicles under this heading was in the *M.M.* for July 1960. The table contained twelve vehicles and I commented, "This list may easily double by the end of the year". In fact, by the end of the year there were eighteen vehicles in space and several more had been up—and down —in the meantime.

Of the 35 vehicles listed in the panel on the right of this page eight were in the July 1960 list. The Americans also announced the launching of satellites on November 22 and December 22, 1961, but as no information was released on these it is not known if they are still in orbit, and so they are not included.

In addition to the satellites proper there are the launching rockets, nose caps and other bits and pieces that have been shed either on purpose or by accident. If we took into account only those pieces that are large enough to track, it would add another round 100 items to the list. Accurate orbital data on all of these is kept by such organisations as the Royal Aircraft Establishment, from whose lists this month's table was prepared.

In the cases where two satellites are bracketed together they were launched by the same booster. Sputnik 4 is one of the few failures admitted by the Russians. This was a full-scale try-out of the capsule in which Major Gagarin was later orbited. The capsule separated from the satellite but failed to return to earth. A rather similar mishap occurred with Transit 4A–Greb 3–Injun. In this case, three satellites were launched together; Transit 4A separated according to plan, but Greb 3 and Injun did not and are still orbiting together.

Another American plan also went astray. This was the launching of a large number of fine copper needles into a belt at a height of about 2,000 miles for radio experiments. This was hotly opposed at

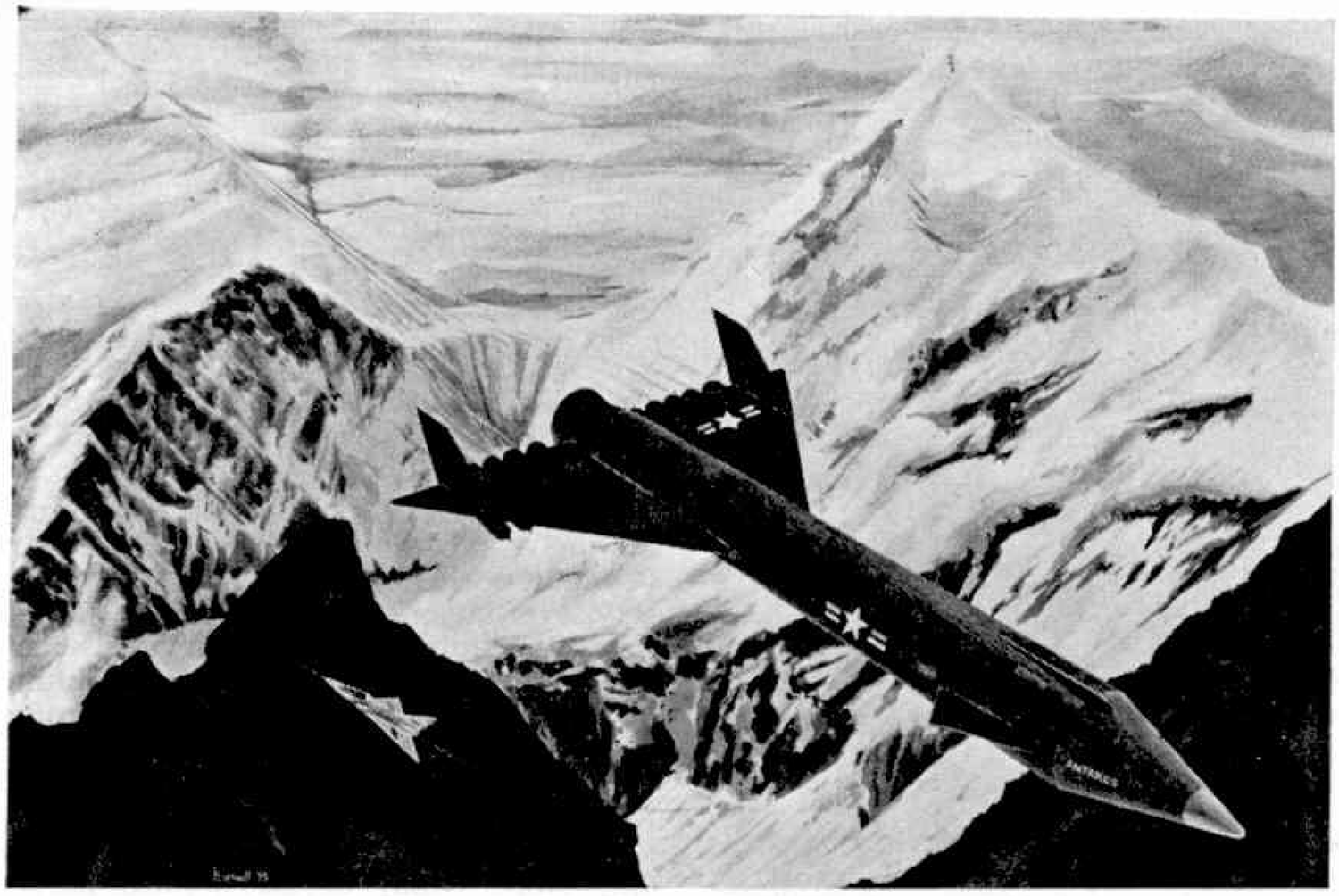


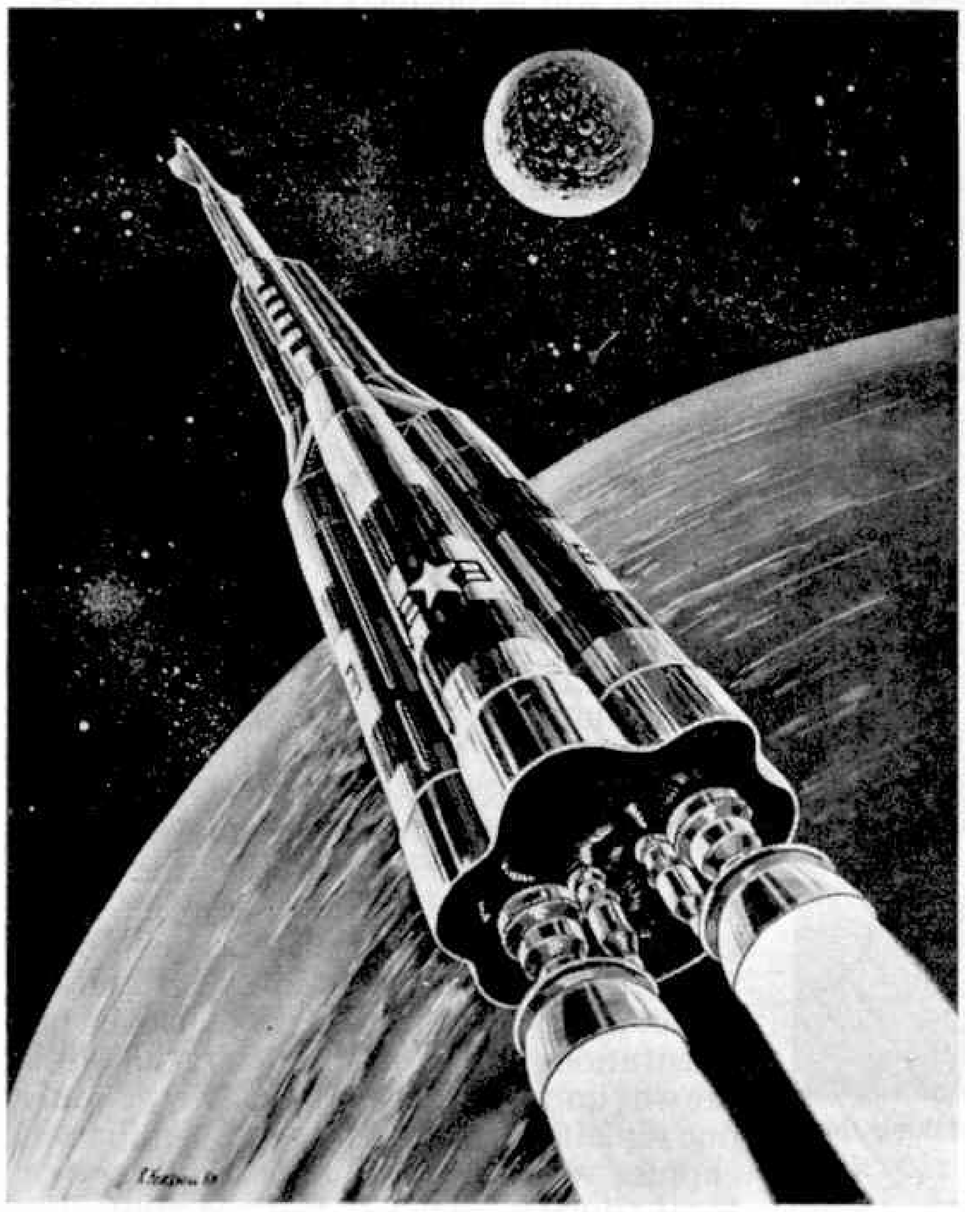
Aldebaran, a space-liner of 25 years hence, using advanced nuclear propulsion, is shown above.

SPACE VEHICLES STILL IN ORBIT

Name	*Date launched*	*Date due down*	*Weight (lb.)*	*Period (Min.)*	*Orbit height (Min. miles)*	*Orbit height Max. miles)*	*Trans-mitting Radio Signals*
SATELLITES							
Explorer 1	1 Feb., '58	1968	30.8	106	213	1,087	No
Vanguard 1	17 Mar., '58	about 2060	3.25	134	403	2,450	Yes
Vanguard 2	17 Feb., '59	about 2110	21.5	125	345	2,045	No
Vanguard 3	18 Sept., '59	about 2110	100	130	316	2,316	No
Explorer 7	13 Oct., '59	1990	91.5	101	335	668	No
Tiros 1	1 April, '60	2010	270	99	429	467	Yes
Transit 1B	13 April, '60	1965	267	95	228	401	No
Sputnik 4	15 May, '60	Aug., '62	about 4,000	91	167	261	No
Sputnik 4 capsule	15 May, '60	May, '64	about 5,000	93	169	349	No
Midas 2	24 May, '60	1970	5,000	94	298	310	No
Transit 2A	22 June, '60	2060	223	102	389	649	Yes
Greb 1	22 June, '60	2040	42	102	380	657	No
Echo 1	12 Aug., '60	1964?	150	116	561	1,308	No
Courier 1B	4 Oct., '60	2500	500	107	584	766	Yes
Explorer 8	3 Nov., '60	2010	90	112	258	1,409	No
Tiros 2	23 Nov., '60	2000	280	98	384	454	Yes
Samos 2	31 Jan., '61	1980	4,100	95	294	340	No
Explorer 9	16 Feb., '61	1965?	15	118	466	1,519	No
Explorer 10	25 Mar., '61	?	78	5,013	109	112,000	No
Explorer 11	27 April, '61	2060	95	108	302	1,108	No
Transit 4A	29 June, '61	2600	175	104	547	619	Yes
Greb 3-Injun	29 June, '61	2900	90	104	548	618	Yes
Tiros 3	12 July, '61	2060	285	100	457	509	Yes
Midas 3	12 July, '61	12,000?	3,500	162	2,083	2,196	No
Explorer 12	16 Aug., '61	2060?	83	1,587	482	47,630	No
Midas 4	21 Oct., '61	12,000?	3,500	166	2,178	2,316	No
Discoverer 34	5 Nov., '61	Jan., '63	2,100	96	139	572	No
Transit 4B	15 Nov., '61	3000?	200	106	593	689	Yes
Traac	15 Nov., '61	3000?	200	106	589	694	Yes
Tiros 4	8 Feb., '62	2060	285	100	442	520	No
OSO–1	7 Mar. '62	?	458	?	340	370	Yes
OTHER SPACE VEHICLES							
Lunik 1	2 Jan., '59	—	3,245	420 days	In		No
Pioneer 4	3 Mar., '59	—	13.4	407 days	orbit		No
Pioneer 5	11 Mar., '60	—	94.8	311 days	about		No
Venus probe	12 Feb., '61	—	1,419	—	Sun		No

FIGURES CORRECT AS AT 1 APRIL, 1962.





Above: Antares—a lunar freighter using an early type of nuclear rocket. Left: Arcturus—a three-stage lunar vehicle of the near future, propelled by conventional rockets. The three illustrations for this article are by courtesy of the Martin Company.

the time by radio astronomers and they certainly had the last laugh because the package containing the needles is still circling with Midas 4.

The grand total of successfully launched satellites and other space vehicles is now 83.

PLANS FOR THIS YEAR

At the time of writing, N.A.S.A. has a further 36 shots scheduled for this year, some of which have, in fact, "slipped" from last year. The most spectacular of these will undoubtedly be the two further manned orbital flights and the two Venus fly-by shots which are due in the third quarter of the year. But many of the other less spectacular flights will be at least as important scientifically and some of them will be first-timers. The most interesting of these is the Orbiting Solar Observatory (OSO) with which it is intended to observe the sun without the need to look through our thick blanket of atmosphere.

Weather satellites will also be to the fore, and so will communications satellites (eight are planned including one towards the end of the year in a 22,300-mile high orbit). A feature of this year's shots is the increasing use of Scout (eight shots)—the all-solid propellent 4-stage launcher which was to have launched Britain's first satellite.

THE FURTHER FUTURE

In addition to N.A.S.A.'s programme we can be fairly sure of one or two spectacular shots from the Russians. But, far advanced though they be, they are unlikely to be firing anything resembling the vehicles shown in our illustrations. These represent some of the Martin Company's futuristic thinking.

Arcturus, the first of the trio, is intended as an alternative to Nova, the lunar landing vehicle. The booster stage would consist of two F–1 million-pound thrust engines using the conventional propellents —liquid oxygen and kerosene. Stages two and three could use either conventional or high-energy propellents. In the former case, a payload of 2,000 lb. could be landed on the moon and returned safely to earth. With high-energy propellents this could be increased to 10,000 lb. This could be operational in, perhaps, another three years.

Antares takes us into the 1970–5 period, and is considered to be the first major application of the atomic fission type of rocket in which a gas is heated up to very high temperatures by means of a reactor and expelled through a nozzle. This is a single-stage vehicle which would be launched from a turbo-jet powered sled. At launch, ramjet engines take over and accelerate it to about two miles per second, when the nuclear rocket is switched on. By using orbital refuelling, Antares could land between 1,000 and 2,000 tons of payload on the moon.

Aldebaran at first sight looks like a science fiction writer's dream. It is intended as a single-stage passenger space ship of the 1980's. The design is based on the assumption that a significant step will by this time have been made in nuclear propulsion. The payload would be five or ten times as great as that of Antares. Fanciful? Perhaps, but remember that only a decade ago most staid citizens considered those who talked of manned orbital flight as mere cranks.

"Comfort Trucks" For Turkey

Sleeping berths will be installed in the cabs of seven of a £70,000 fleet of long-distance truck chassis which have been ordered by a Turkish company from Leyland Motors, Ltd.

The contract calls for 27 Leyland Comet 8-ton models, of which seven will have special "Sleepakabs" designed and built by the Bankfield Engineering Co. Ltd., Southport. Each cab is based on the Leyland Group Vista-Vue design and incorporates two sleeping berths, positioned one above the other, in a 1 ft. 7½ in. extension at the rear. The lower berth can be used in the daytime as a bench seat for three people.

COMPETITION WINNERS

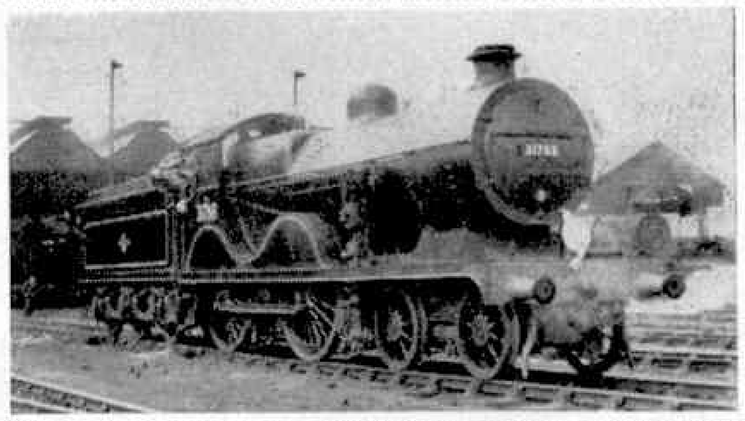
The finals of the Austin Healey Club Model Building Competition sponsored by Revell (Great Britain) Ltd. were held recently at the Beech Tree Hotel, Beaconsfield.

Included in the panel of judges were Pat Moss, Raymond Baxter, executives of the Revell Company and well-known figures from the British car industry.

Pat Moss presented the prizes—an inscribed silver tankard to the winner, Mr. John Gott of Northampton, who entered a superb model of the Revell Austin Healey 100-6, and a Revell construction kit of a 1962 Chrysler car to Mrs. Seaman, runner-up.

RAILWAY NOTES

Contributed by R. A. H. Weight



Faster Services On The Southern Region

WHEN the B.R. summer timetables come into general operation on June 18 they will feature a number of changes and accelerations together with a galaxy of additional holiday services. The S.R. will introduce its full Phase Two electrification programme, completing the transformation of the Sevenoaks–Ashford–Folkestone–Dover main line, as well as the connecting routes to or via Maidstone (East and West) and Canterbury (West).

These link existing outer suburban and Kent coast tracks already operated electrically for all standard-service passenger trains, as I described in the April 1961 *M.M.* Some freight and parcels trains will be hauled by electric locomotives; others by diesels, which will also work on the non-electrified Hastings lines from Tonbridge or Ashford, between Tonbridge and Redhill, etc. and on the New Romney branch. Diesel-electric multiple-unit trains will continue to provide Hastings–London and local services.

The new timetable shows vast improvements in regularity, speed and frequency. Fast, semi-fast or intermediately slow, multiple-unit electric trains for the most part on an hourly, or half hourly, basis will serve directly all principal stations, as well as the majority of country ones. There will be speedy connections from one service or route to another, for example, at Ashford, one of the important stations being enlarged and rebuilt. Convenient travel should be possible from any station in the county of Kent to any other at least once an hour, with similar East Sussex links. Every hour, on the hour, expresses leaving Charing Cross and Folkestone (Central) will provide an 80-minute service in either direction, making a 55-mile non-stop run each way between Waterloo (Eastern) and Ashford within an hour, and running through to and from Dover–Deal–Ramsgate. A section detached, or attached, at Ashford, however, will provide a much quicker Ramsgate journey by way of Canterbury (West), the only stop. Many of the point-to-point timings will be decidedly fast. Experience of the comfortable, attractive new trains, while running on existing steam schedules as a preliminary measure, has shown that they have plenty of power in hand.

In the picture here by S. C. Nash, two former S.E.C.R. 4–4–0s, Nos. 31749 and 31067, are making their last journey on the way to Ashford Works for withdrawal.

Entirely new signalling of the latest remote-control colour light type has been installed, with impressive new signal boxes at key points only on the main line.

The last outer-suburban steam passenger trains, from London to East Grinstead and Tunbridge Wells, on the Central Section, with extensions along country routes to Brighton or Eastbourne, via Oxted, are being replaced this year by diesel-electric sets.

The S.E. Division of the Southern Region is removing all steam locomotives from its London and Kent depots; indeed, at the time of writing the majority have already gone. The steam workings from Tonbridge to Redhill, the Sussex coast and Oxted line, are almost the only ones left and they are only there for the time being. One will miss, for instance, the two-cylinder 4–4–0s such as the ex-South Eastern and Chatham Railway D1 and E1 rebuilds, and the L class, depicted in my illustrations this month but now all withdrawn; and the rather newer L1 type (only one remaining), for many years familiar on express work and then on secondary or local duties. The 2–6–0 Moguls are moving to other parts of the Region, with the three-cylinder Schools 4–4–0s still active. No. 30929, *Malvern*, of the latter class, was on Hastings passenger and parcels trains during March last.

STEAM STILL PARAMOUNT

In striking contrast, the Western Division still employs steam power exclusively for its long-distance express services between Waterloo and Bournemouth or beyond, also to and from the West of

In our heading illustration, S. Creer has managed to capture with his camera the last member of the L class 4–4–0s to remain in service.

England by way of Salisbury–Exeter. The bulk of all operating at Basingstoke, or west of that point, is still carried out by steam power, apart from the diesel-electric sets making local or inter-town journeys around Winchester, Portsmouth, Southampton, Salisbury, etc. or the few W.R. diesel workings involved in through running arrangements.

The *Atlantic Coast Express* was again speeded up last autumn. Covering the 172 miles up and down over a rather difficult course between Waterloo and Exeter (Central) takes less than three hours. On many occasions the rebuilt Merchant Navy Pacifics, when expertly driven and fired, have proved that they have reserves of power and speed in hand, even on such an exacting duty, to allow for delays, the attachment of extra coaches, adverse weather and so on.

As I explained when reporting my runs in the November 1960 *M.M.*, and in a previous issue, this Devon and Cornwall express is unique in that it conveys so many portions or through carriages normally detached or attached at Salisbury, Sidmouth Junction, Exeter, Okehampton, etc. Its rostered "maximum" load on the main line is twelve coaches, including restaurant and buffet cars, about 400 tons tare.

When my friend, Mr. S. C. Nash—who also took two of this month's accompanying photographs—logged the A.C.E. 11 a.m. from Waterloo, not only was the load "13", weighing 432 tons plus a full complement of passengers and baggage, but this was taken right through to Sidmouth Junction in the teeth of a fierce south-westerly wind. No. 35029, *Ellerman Lines*, however, worked hard, enjoyed a clear road, and gained one and a half minutes on the fast 80-minute allowance to the first stop, at Salisbury, 83¾ miles, at an average of 64 m.p.h., with excellent pulling up the long, gradual ascent past Woking and Basingstoke.

Gradients are more severe west of Salisbury, but in spite of the adverse conditions and heavy load a tight schedule was improved upon; for instance, summits beyond Templecombe and Sutton Bingham were topped at respectively 68 and 50 m.p.h. The steepest climb, to Honiton Tunnel, was taken easily as the train was early, reaching the Sidmouth Junction stop, 76 miles from Salisbury, in 72¼ minutes, compared with the working timetable allowance of 75. After the detachment of four coaches, the final 12¼-mile sprint on to Exeter was accomplished in just about the fourteen minutes booked. Full advantage was taken of tempting downhill stretches with maxima of 90, 93 and 88 m.p.h. (I have heard of around 100!) although this is rather in excess of the normal official limit.

On a return journey behind the same locomotive with "11-on", say 400 tons gross, and only 74 minutes allowed, there was a two-minute gain from Sidmouth Junction to Salisbury. This length included a signal check, with more first-rate uphill work, such as 63 m.p.h. summit

Top: No. 35029 "Ellerman Lines" is approaching Surbiton in this striking view of the "Atlantic Coast Express" by J. C. Beckett. Below: No. 30923 "Bradfield", of the Schools class, was photographed near Hastings some months ago by S. C. Nash.

speeds before Crewkerne and Templecombe, and a 70 m.p.h. average for 61 miles over sharp ups and downs. Two more carriages would probably be attached at Salisbury. After high speed travel past Basingstoke–Woking–Esher, the *ACE*, is due back in Waterloo at 3.29 p.m.

THE NEW "WESTERN" CLASS

The latest Western Region main line C–C, type 4, diesel-hydraulic locomotives are the most powerful of their kind. On order at Swindon and Crewe (L.M.R.) Works are 74 units numbered from D1000 upwards. Commencing with *Western Enterprise* and *Western Pathfinder*, they are all to bear names prefixed *Western*. Judging by first impressions they are of pleasing appearance and feature some experimental colour finishes. The pioneer of the new class is painted in a hue designated "desert sand".

With a power rating of 2,700 h.p. they have two bogies, each with three driven axles, and are designed for a maximum speed of 90 m.p.h. The twelve-cylinder diesel engines are of the Bristol Siddeley–Maybach type, actuating two Voith–North British hydraulic transmissions employing oil-air pressure and torque converters.

A.E.C. FLEET FOR OIL TRANSPORT

The first consignment of an order for 30 A.E.C. tractors, valued at £250,000, which will haul payloads of 20 tons of crude oil in Turkey, were recently shipped from London Docks. The vehicles, for service with the Selahattin Beyazit Transport Company, will operate under contract to N.V. Turkse-Shell and the Shell Company of Turkey. They will haul Taskers semi-trailers fitted with locally-manufactured tanks of 150-barrel capacity.

When in service, the vehicles will carry crude oil from the wells at Dijarbakir, in Eastern Turkey, to the oil refineries on the coast at Mersin. The round trip from oilfields to refineries and back will entail about 840 miles, much of it over mountainous country.

The vehicles will be powered by A.E.C. AV 690 engines, fitted with 4-speed gearboxes and 2-speed auxiliary gearboxes. Final drive will be through double reduction rear axles, steering will be power-assisted, and Clayton-Oetiker exhaust brakes will be fitted. All-steel insulated cabs which incorporate lift-up sleeping bunks for the crew of two will be built on the vehicles.

Jumping on water skis. Johnnie Morris, who skis for Britain in European championships, takes off on a spectacular leap. Photograph by H. G. Forsythe.

H. G. FORSYTHE TELLS YOU ABOUT

Fun On Water Skis

THRILLS and spills galore—that's the very essence of water skiing. Just imagine being towed behind a fast motor boat at 40 m.p.h. balanced on two slim skis, shooting over the water in a cloud of spray. Watching water skiers is exciting but to ski yourself—well, Speed King Donald Campbell says that riding water skis is "nearly as great a thrill as speeding along in my *Bluebird*".

Yet, water skiing is not difficult. It is possible, with proper tuition, to learn to ski in an afternoon, although trick skiing and jumping requires lots of constant practice.

Only a few years ago water skiing was the exclusive preserve of the few; now it has become a sport for everyone. It is interesting to note that already more people water ski than snow ski, although by comparison snow-skiing is quite an ancient sport.

EVEN MORE EXCITING

Originating in the early 'twenties, water skiing is generally considered to be the invention of an American, Fred Waller, also famous as the inventor of the spectacular film process known as Cinerama.

Water skiing really developed from aquaplaning, that is, riding on a rectangular board which is something like a large surf board, pulled behind a speed boat. Fred Waller's idea of riding on two small aquaplanes, one for each foot, provided an even more exciting method of having fun on water.

The progress of water skiing has gone hand in hand with the development of small, fast, powerful speed boats. Easily-handled small craft, capable of speeds of over 40 m.p.h., and powerful enough to overcome the heavy drag of the skier, have become reasonably priced and easy to obtain in recent years, and so have brought water skiing within the reach of everyone.

Serious water skiing was first introduced to Britain about ten years ago by David Nations, British Water Ski Champion. Mr. Nations' band of enthusiasts rapidly grew and by 1953 Britain was able to enter three skiers in the European Championships, held in Austria.

Today, about 4,000 people ski regularly in Britain. Some really enthusiastic skiers carry on all the year round, wearing special protective clothing in winter. There are now more than 30 water ski clubs all over the country, many of which provide courses of instruction so that anyone interested has the opportunity of learning the sport.

The activities of the clubs are greatly assisted by the British Water Ski Federation. The federation has drawn up a comprehensive set of safety regulations which makes properly-conducted water skiing just as safe as it is exciting and enjoyable. If you are interested in joining a water ski club, do make sure that the one you choose is affiliated to the federation, whose other activities include the organisation of tournaments and competitions.

A FEW DUCKINGS

Although water skiing and snow skiing might seem to be related, they are really very different sports. The water skier depends entirely on being pulled forward rapidly to keep him upright. Below a speed of about 15 m.p.h., his skis will not plane on the water and he goes under. As happens in ice skating, or roller skating, the beginner feels his feet going in all directions at first, but after a few duckings soon gets the knack and, far sooner than his snow-borne counterpart, is able to sample the thrills of skimming over the surface.

Water skis are much bigger and heavier than snow skis. For ordinary pleasure skiing, two skis about 5 ft. 8 in. long by $6\frac{3}{4}$ in. wide are used, and each ski weighs approximately 15 lbs.

One exciting feature of tournaments and water ski exhibitions is jumping. Here, skiers are towed up a wooden ramp at speed. Flying off the end of the ramp they shoot through space until they meet the water again with a resounding "slap", knees flexed and body bent in a determined effort to remain upright.

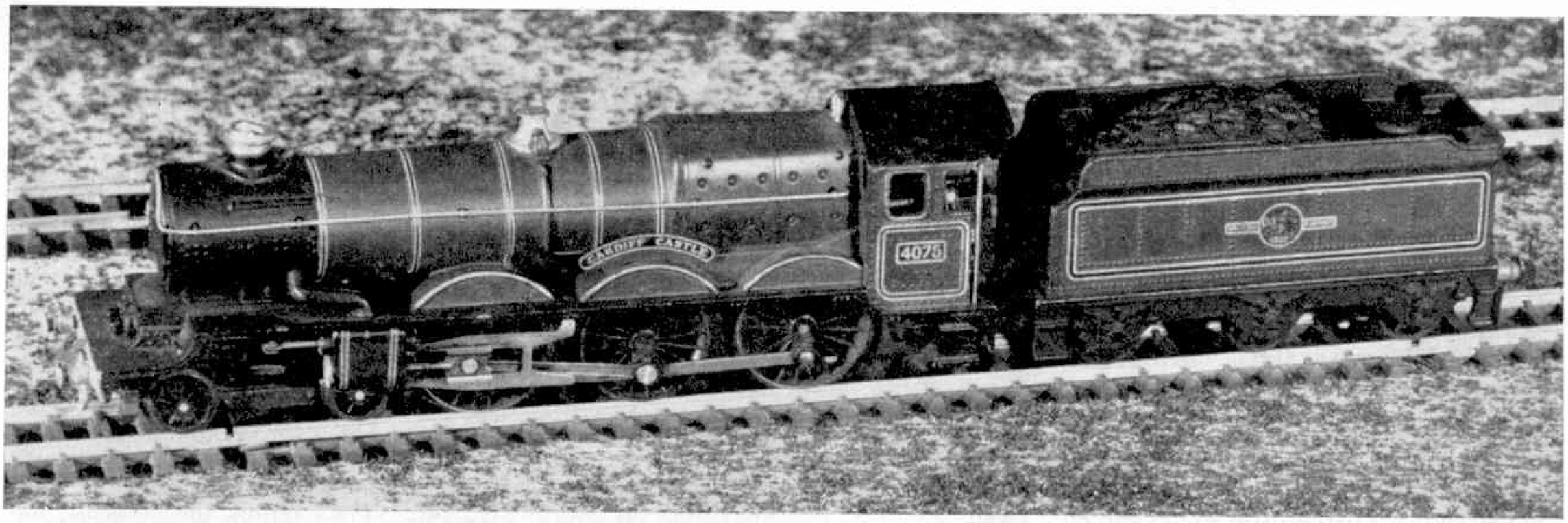
Jumping is strictly for experts, and is great fun to watch. Skis for this particular aspect of the sport are even bigger than ordinary water skis, and are specially re-inforced. It is possible to jump quite long distances and the record, at present held by an American, stands at 122 feet.

FULL OF THRILLS

Slalom skiing, too, is full of thrills. Slalom skiers ride on a single ski of special construction and must negotiate a course marked out with buoys. This particular branch of the sport calls for a keen sense of balance and an ability to "steer" the ski with considerable accuracy. A Slalom course, as readers know, is laid out in zig-zag pattern. The speed boat passes along the course in a straight line, but the skier must go round each buoy, first to one side, then the other.

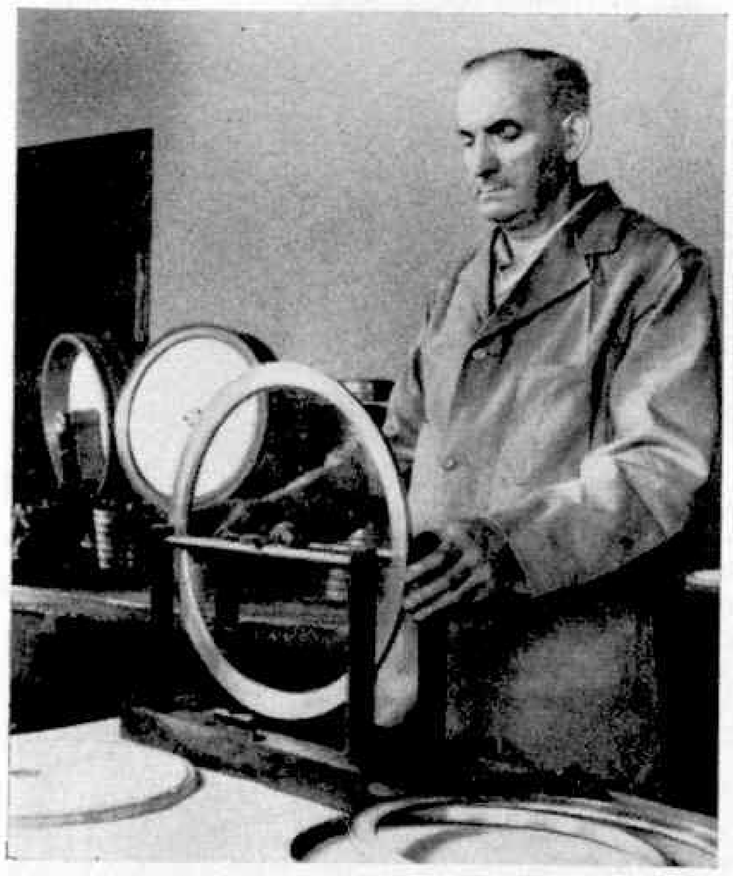
Then there is trick skiing, ranging from simple 180 degree turns to "doing doubles" on one pair of skis, and even skiing with no skis at all! This is known as bare-foot skiing and, as you might imagine, is extremely difficult.

Water skiing certainly is fun both to watch and to take part in. You can see it in full swing at Ruislip Lido near London, and at Torquay, Maidenhead, Hull, Scarborough and on Loch Lomond, to name but a few places.



The "Cardiff Castle" locomotive and tender pictured above—a standard production from the assembly lines at the Meccano Factory in Liverpool—recently covered a total of no fewer than 570 statute miles while working on a large window layout at a Hornby dealer's shop in the Midlands. The locomotive hauled a train which often consisted of more than 20 items of rolling stock, yet, apart from occasional brush changes and oiling, it required no special maintenance. This is indeed a fine tribute to the efficiency of the Ring Field Motor which is fitted in this type of locomotive and the "Meccano Magazine" is indebted to the dealers concerned, Mr. and Mrs. T. J. Perry of "The Perrys", Alum Rock Road, Birmingham, for the loan of the locomotive and tender for photographic purposes.

OF GENERAL INTEREST



The craftsman in this picture is balancing a half-inch armour-plate glass for a Clear View Screen designed for use in hovercraft at windspeeds of up to 150 knots. George Kent Limited, the mechanical and electronic instrument makers, first introduced the Clear View Screen 50 years ago, and it has been used almost universally in British ships ever since. Clear View Screens are under test at the Royal Aircraft Establishment, Farnborough, where a wind tunnel is being used to study devices which might improve the visibility through aircraft cockpit windscreens in rain. In spite of the latest electronic landing aids, aircraft pilots still need to see well when landing and taking off, and rain can be a considerable nuisance to the pilots of airliners, helicopters and crop-sprayers.

* * * *

The fearsome creature you see in the picture on the right is really a metal knocker on the door of Durham Cathedral. The eyes are holes, and the mouth a slit, going right through the door. This grotesque object is, in fact, a sanctuary knocker used in the Middle Ages by pursued criminals. They were entitled to sanctuary in the cathedral, being admitted after they had given a resounding rat-tat-tat on the knocker. The door-keeper inspected them through the eye-holes and questioned them through the slit before allowing such fugitives to take refuge in the building.

Lawbreakers did not, however, escape retribution by this means. They were punished by the Church authorities, and the (*Cont. on page 216*)

From the outside, Morpeth House, in Lacey Street, Ipswich, is just an ordinary-looking residence, but one of its rooms is entirely decorated in postage stamps.

The room was the library of Mr. C. Whitfield King, a stamp dealer who founded a business which is still carried on from a large building opposite Morpeth House. In 1892 Mr. King had his library walls covered with 44,068 unused foreign stamps with a face value of £699 16s. and of 48 varieties. At first glance, the walls seem to be tiled but a closer look reveals that these thousands of stamps, of many different colours and sizes, have been skilfully arranged to form a mosaic.

In April 1894 a bookcase was removed and the wall space behind papered with 5,474 stamps, the face value of which is £50 16s. 3d. Among the 48 varieties are 7,296 of the Argentine Republic, 5,395 Samoan, 13,600 Roman States, 2,835 Sardinian and 16 English 6d. stamps. The room, measuring 15 feet by 13 feet, was decorated by a skilled workman.

UP BEYOND THE CIRCLE

L. Bruce Mayne Describes A Visit To The Projection Room Of A Modern Cinema

"FINGERS!" yells the Chief, and the heavy, steel, fire-proof shutters slam down over the ports. Another evening's show is over.

To go into a projection room of a large cinema when a show is in progress is an intriguing experience. On my visit, as the fire-proof door swung shut my ears were shattered by the noise of speech, music and effects from the sound track of the film, relayed to loudspeakers behind the screen over 100 feet away and, additionally, through a monitor speaker—whose volume control appeared to be permanently set at maximum—inside the projection box. Above the clamour of a storm at sea the chief projectionist tried to make himself heard—not always successfully. He told me he didn't notice the noise at all, but then, he has been at the job for 47 years!

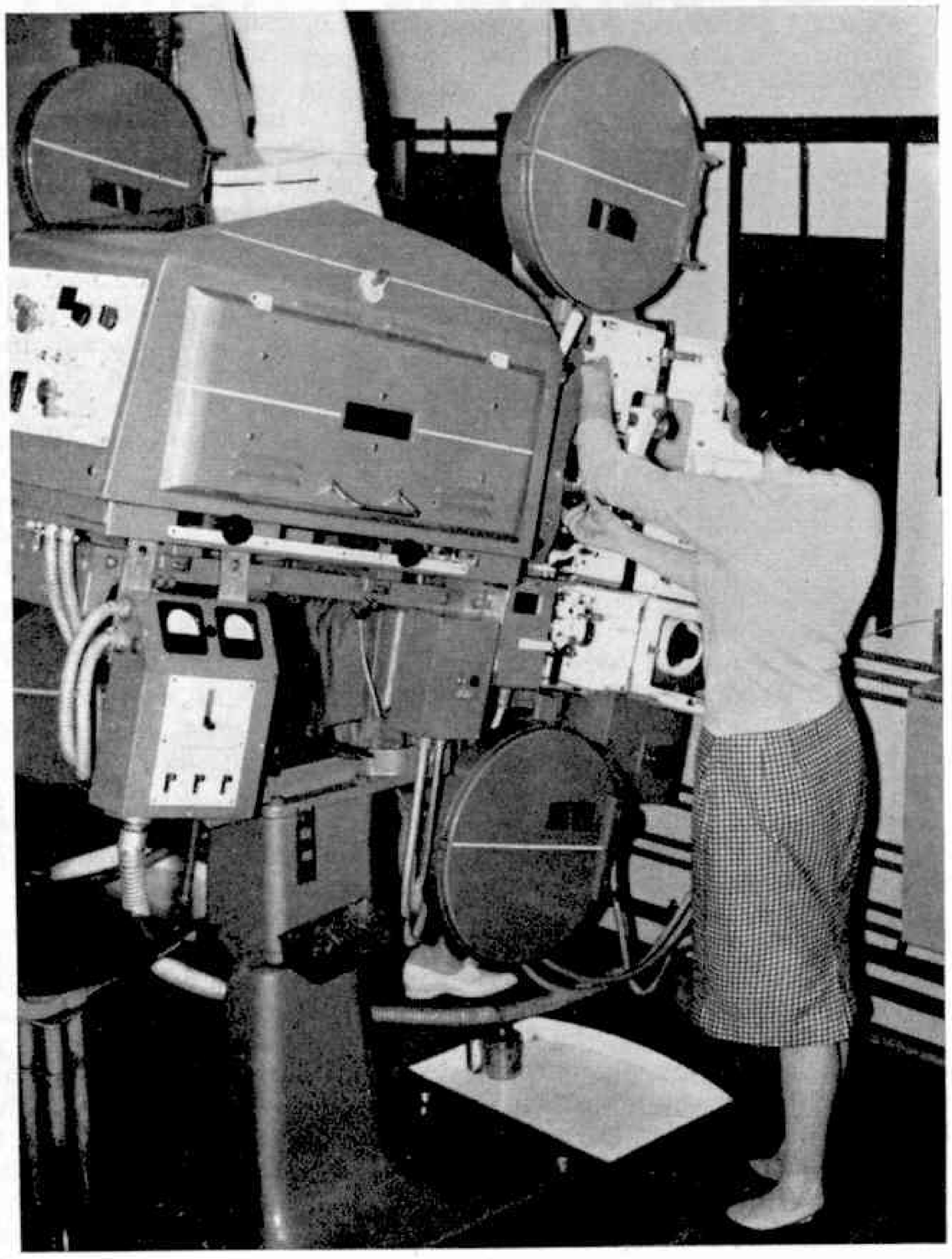
The projection room was spotlessly clean and tidy and there was far more light here than one might have supposed, yet the overall impression was the strict observance of the numerous safety regulations. These date from the time when film stock had a base of cellulose nitrate, a very highly inflammable substance. During the last ten years or so 35 mm. film stock has been made from a non-inflammable base, but the safety precautions remain as rigid as ever.

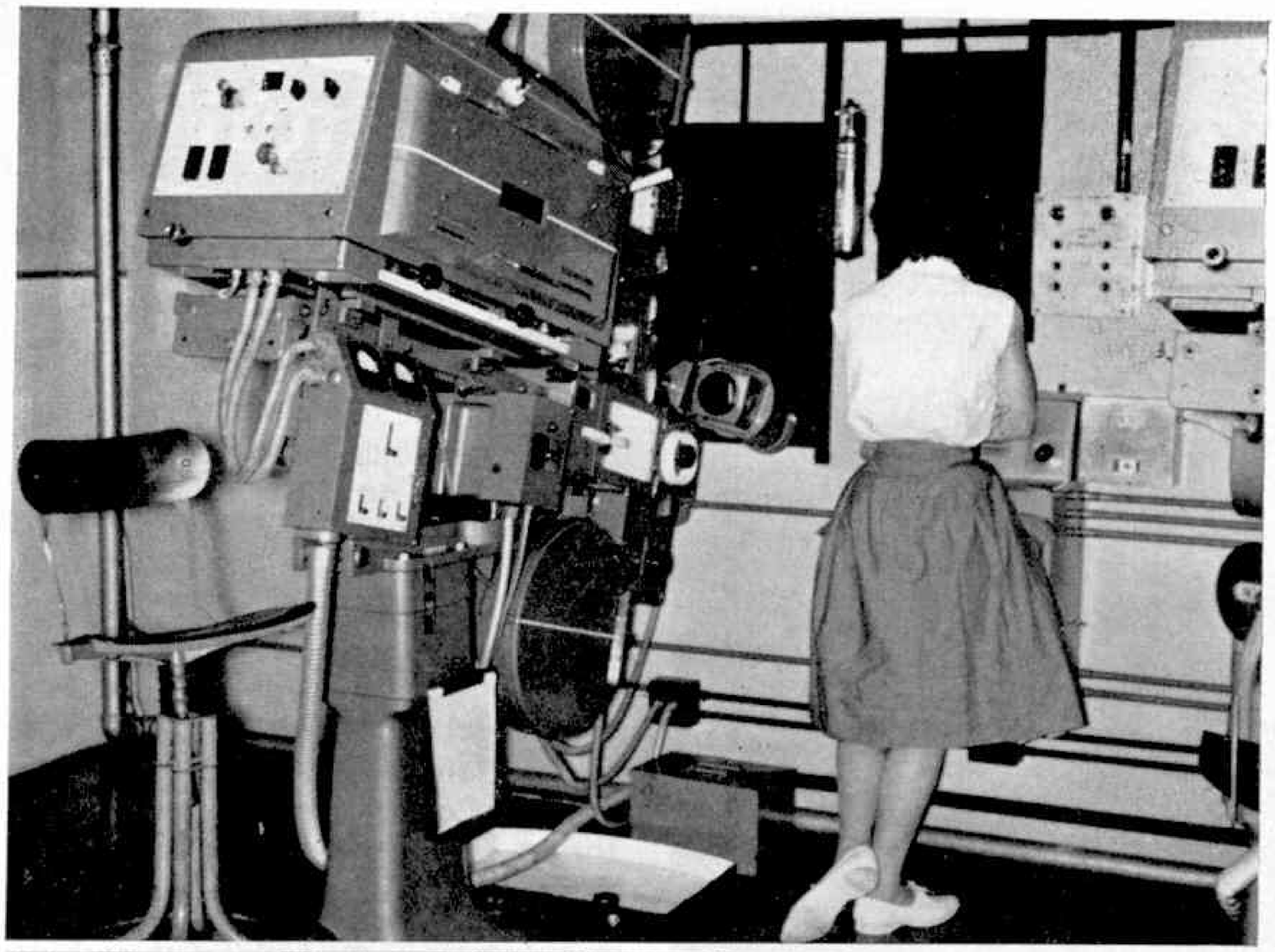
Every projectionist who has been in the business for any length of time has his stories of earlier days and the adventures they had then in showing their films. If a film becomes stuck in the "gate" of the projector, the enormous heat from the arc lamp will burn it, but there is no real danger today with safety film. In the old days, however, the whole reel could have been a blazing mass before the operator had time to blink, endangering his own life and those of others. Little wonder that safety precautions were so important then, and still are today, although the danger of fire is much less than it was even a decade ago.

The whole vast film industry, and the entertainment of millions of cinemagoers, depends on a strange little quirk of human sight known as "persistence of vision". This means that for the tiniest fraction of a second we can still see an image which is no longer actually in front of our eyes. On this human failing the basis of film projection depends.

The projector's powerful arc lamp shines through a positive film and throws an image on to a screen. The film is divided into pictures or frames, each of which is only slightly different from the one before. Every second, 24 of these frames are passed in front of the light, but each time the film is moved down a frame the light is prevented from shining on to the film by a shutter; if it were not, we should see just a blur on the screen. As it is, our brain holds the picture we have seen long enough for the next frame to be

The Chief Projectionist (below) checks the leads to the arc lamp. Right: Threading, or lacing, the second machine while a cinema performance is in progress. These pictures and those on the opposite page are by courtesy of the author and were taken at the Odeon Theatre, Port Talbot, a Rank Organisation cinema.





The operator (above) watches the screen through the observation port to check on the quality of the picture. Left: Re-winding and examining the film after showing it.

shown, and so on. In this way we see action from a number of still pictures.

The projector is a precision-built instrument which performs this "trickery" effectively, and the projectionist is a trained operator who sees that it works properly.

Above the machine is the take-off magazine which holds a 2,000-foot reel of film. From here the film is pulled down and threaded over sprockets, through the "gate", which holds each frame steady between the lens and the light-source, around more sprockets, past the exciter lamp and the photo-electric cell, which produces the sound from marks on the side of the film, and into the take-up magazine down below.

The light-source of some projectors is an electric lamp, but the most common light-source in professional projectors is the arc lamp. Two rods of carbon, 8 mm. in diameter and covered with a copper coating, carry a direct electric current of about 38 volts and 55 amps. The two rods are separated by a small gap. The current arcs this gap, giving a brilliant light of about 2,000 watts. This light is reflected and intensified by a mirror which, in the Gaumont Kalee President arc lamp, is 14 inches in diameter but may be slightly larger or smaller in other types.

The reflected light from the arc is focused on the film correctly, and in this way the image is projected through the lens on to the screen.

The brightness of these lamps can blind a man, so great precautions are taken with them; they can also burn. Anyone who has been exposed to the rays from an arc lamp suffers in the same way as one who has had an excessive dose of sun-bathing, with the same painful results.

The day for the chief projectionist and his staff, who work a rota system, starts in the morning when the projection room is cleaned and the machines are maintained and tested. Then, about half an hour before the show is due to start, they return to thread the machines and make everything ready for the first show of the day. Throughout the eight or nine hours of the continuous performance the machines have to be minded, the change-overs carried out, interval music played, house lights operated, and so on. Nor is it just a question of going through the same motions week after week; for although much of the chief projectionist's job is technical, there is opportunity for him to show artistic judgment, too, in the use of lighting, curtain work and general presentation techniques.

Every twenty minutes or so the operators are alerted by a persistently-ringing bell. This stand-by warning for a change-over of machines is a cleverly simple device. On the take-off magazine's spindle is a small hammer, hanging free. As less and less film remains on the top spool the spindle rotates progressively faster and faster.

When there is only a minute or two of the film left to run, the spindle is rotating fast enough to make the hammer strike the bell. On this signal, the operator of the second machine "strikes" the arc, so that the light has time to warm up, and focuses the light correctly. The operators then watch through the observation ports for a cue on the screen. This is a black dot which appears in the top right-hand corner when it is time to start the second machine running on its leader—a piece of film numbering from 11 down to 3. The "dowser" is opened, so that the light from the arc lamp is shining on a safety shutter behind the "gate". When a second cue appears on the screen, the shutter of the second machine is opened by a switch and the sound is transferred to this machine. By split-second timing, as the last frame on the first machine reaches the "gate" the first frame of the next reel is in the "gate" of the second machine. So the change-over is complete.

The take-up spool is removed from the first machine and an operator takes it to the film rack, where each reel is stored in a separate container. The next reel is taken out and threaded—or laced, as it is sometimes called—on the first machine. This task completed, the operator returns to the rewind room, removes the reel he has recently placed in the rack and rewinds it by hand. He allows the film to run through his fingers to find any faults, such as broken sprocket holes. If there is a break, it is repaired by trimming the film and scraping away the emulsion from a small section and applying special film cement which, under pressure, welds the two pieces of film together perfectly—a job which takes the expert only a matter of seconds to complete.

Once the film has been rewound it is replaced in its container in the rack, ready for the next performance. To avoid confusion there is a system of brass, numbered discs, coloured red on one side. By the position of these discs, an operator can tell at a glance (*Cont. on page 216*)

DINKY TOYS NEWS

BY THE TOYMAN

Attractive Television Van: More Figures For Your Road Scenes

IF we can take the past few years as a guide, then the month of May should be warm and sunny, although it is never really possible to say just what British weather will do. If it is pleasant, however, I am sure most of us will spend as much time as possible out of doors, enjoying the sunshine. This is the time of year when sports and all sorts of similar open-air activities such as races, rallies, etc., take place, increasing their tempo throughout the summer, and where such events are attracting the public you will often find television cameras and outside broadcast units recording the events for your TV screen.

It is very appropriate, therefore, that we should this month release our first model of an A.B.C. Television outside broadcast unit. It is seen in the two illustrations on this page and is listed among our Dinky Supertoys as No. 988 A.B.C. TV Transmitter Van.

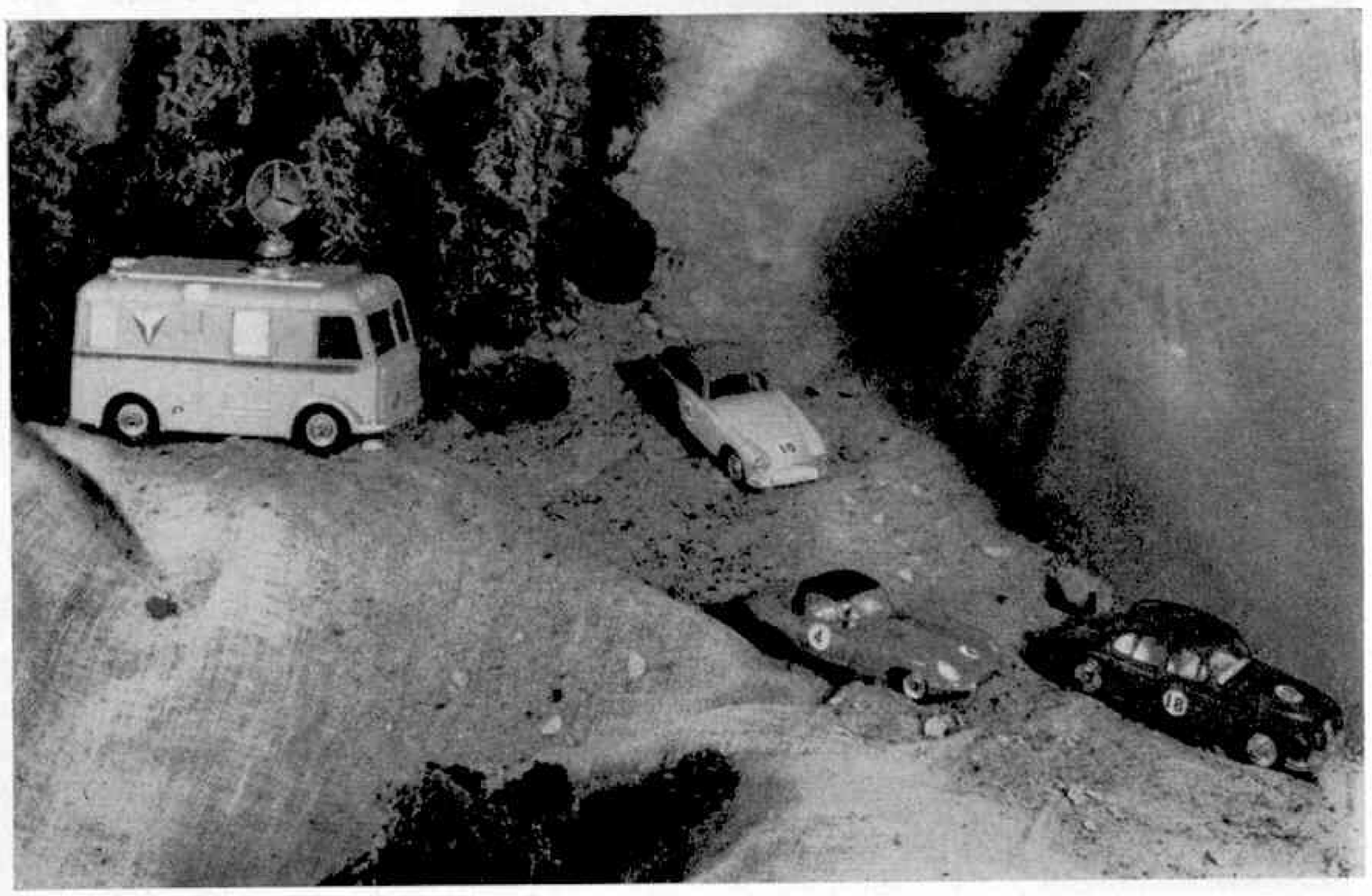
This bright and attractive model is fitted with a simulated aerial, in plastic, in the shape of a paraboloid, which is detachable and which, when affixed to the vehicle, can be rotated through 360 degrees. The authenticity of the model is upheld by the correct colour scheme of pale blue and grey with a red horizontal stripe on either side running round both sides and the back of the vehicle. On each side the panel over the rear wheel carries the A.B.C. triangular emblem in dark blue, white, red and yellow.

The cab windows are clear glazed, but the windows in the body of the vehicle have an opaque finish. The overall dimensions of the van are: Length $4\frac{7}{16}$ inches, width $1\frac{3}{4}$ inches, height (including aerial) $3\frac{3}{4}$ inches.

The illustration at the top of this page gives you a close-up view of the van, showing clearly the lettering A.B.C. TV in bold white characters over the front of the driver's cab and revealing the degree of detail which the aerial possesses.

In the picture at the foot of the page you see the Transmitter Van in an interesting cross-country rally scene. In the proximity of the course to be followed by the cars it is transmitting pictures of the rally back to the studio where they are relayed from the main transmitter.

The rally participants can be seen



The lettering over the driver's cab on the A.B.C. Television Transmitter Van is clearly seen in the picture above. Right: Recording a scene as the Dinky Toys rally cars take a difficult corner.

Danger! Men at work—A roadmaking scene showing figures in the new Dinky Toys Set No. 010 used in conjunction with other models in the range.

descending a rough mountain track and by the appearance of the ground this is one event which will not do the car springs much good!

Incidentally, here is a tip for those of you who want to make up a scene of this nature; the numbers on the models are not

A close-up of three of the figures in the Road Maintenance Personnel Set (No. 010).

transfers, but are small numbers cut out from old calendars and fastened on with a light adhesive. The cars in the illustration are a Jaguar 3.4 Saloon (Dinky Toys No. 195), a Jaguar "E" Type (Dinky Toys No. 120) and the A.C. Aceca Coupé (Dinky Toys No. 167). With the new television van you can create all sorts of scenes similar in nature to the one described, and there is wide scope for the use of one's imagination.

We are also releasing this month a set of miniature figures which I feel sure will soon become the crowning glory of countless Dinky Toys layouts. It is a set of Road Maintenance Personnel numbered 010 in our lists. The set itself consists of a watchman, a hut for the watchman, who is seated, a workman with a pick-axe, a workman with a pneumatic drill, a length of flexible hose for the pneumatic drill, a workman leaning on his shovel, a wheelbarrow, a workman to push the wheelbarrow, a workman shovelling, a brazier, four red hurricane lamps and a road barrier. The barrier is made up of two red and white barrier supports and a barrier pole in the same colours. The barrier pole is tapered towards one end and this, in real life, is to allow the pole to be raised and lowered easily from the thicker end so that traffic can pass.

All these figures are modelled from life, and as you can see from our two pictures, especially the close-up, are realistic to a degree.

The top illustration on this page shows the new figures in a town scene. They are repairing a road which, from its width, appears to be a fairly important one. The Euclid Rear Dump Truck, No. 965, is unloading a layer of ballast for the road and the workman with the shovel is about to throw a shovel-full into the nearby wheelbarrow.

The workman with the drill is breaking the surface of the road and the man with the pick-axe is assisting him in his strenuous job. The other workman in the group is leaning on his shovel, but I do not know if he is doing this because he is tired, or because he is waiting for the two workmen to loosen a useful amount of rubble before he starts digging again!

At this point, I would like to tell my readers about a new type of presentation pack we are introducing for some of the Dinky Toys racing cars.

They are called "Bubble Packs", and the illustration at the foot of this page shows how apt the description is. As you can see, the car—in this instance, a Maserati No. 231—is encased in a transparent plastic "bubble", moulded to the general shape of the model. This is fixed on to a coloured piece of cardboard which carries the name and number of the particular model and is decorated as our illustration shows. The racing cars available in this type of packing are No. 230 Talbot Lago, No. 231 Maserati, No. 232 Alfa Romeo, No. 233 Cooper-Bristol, No. 234 Ferrari and No. 239 Vanwall. The Bubble Pack numbers are 205, 206, 207, 208, 209 and 210 respectively.

This is how Dinky Toys racing car models appear in their new Bubble-Pack presentation.

THE ROAD RESEARCH LABORATORY

By LESLIE E. WELLS

EVERY motorist has many reasons to be thankful for the existence and good work of the Road Research Laboratory at Langley, Buckinghamshire.

The first systematic and centralised approach of science and experiment to the problems of roads began in 1930. Then a small experimental station was built at Harmondsworth, in Middlesex, by the Ministry of Transport which called in local authorities, private industry and the Department of Scientific and Industrial Research to assist in the work.

In 1933, on the advice of the Parliamentary Select Committee on National Expenditure, road research was transferred entirely from the Ministry of Transport to the Department of Scientific and Industrial Research. Accordingly, a Road Research Board was appointed, with Mr. F. C. (later Sir Frederick) Cook as chairman, and the experimental station of the Ministry thus became known as the Road Research Laboratory.

Although the laboratory is primarily concerned with new methods and experimenting with materials associated with road making, this is only a part of its valuable work. Its activities in other directions are of equal significance to practically every road-user.

Intensive investigations are continually being carried out on the many problems connected with traffic movement, congestion, noise, and the study of accidents on the road.

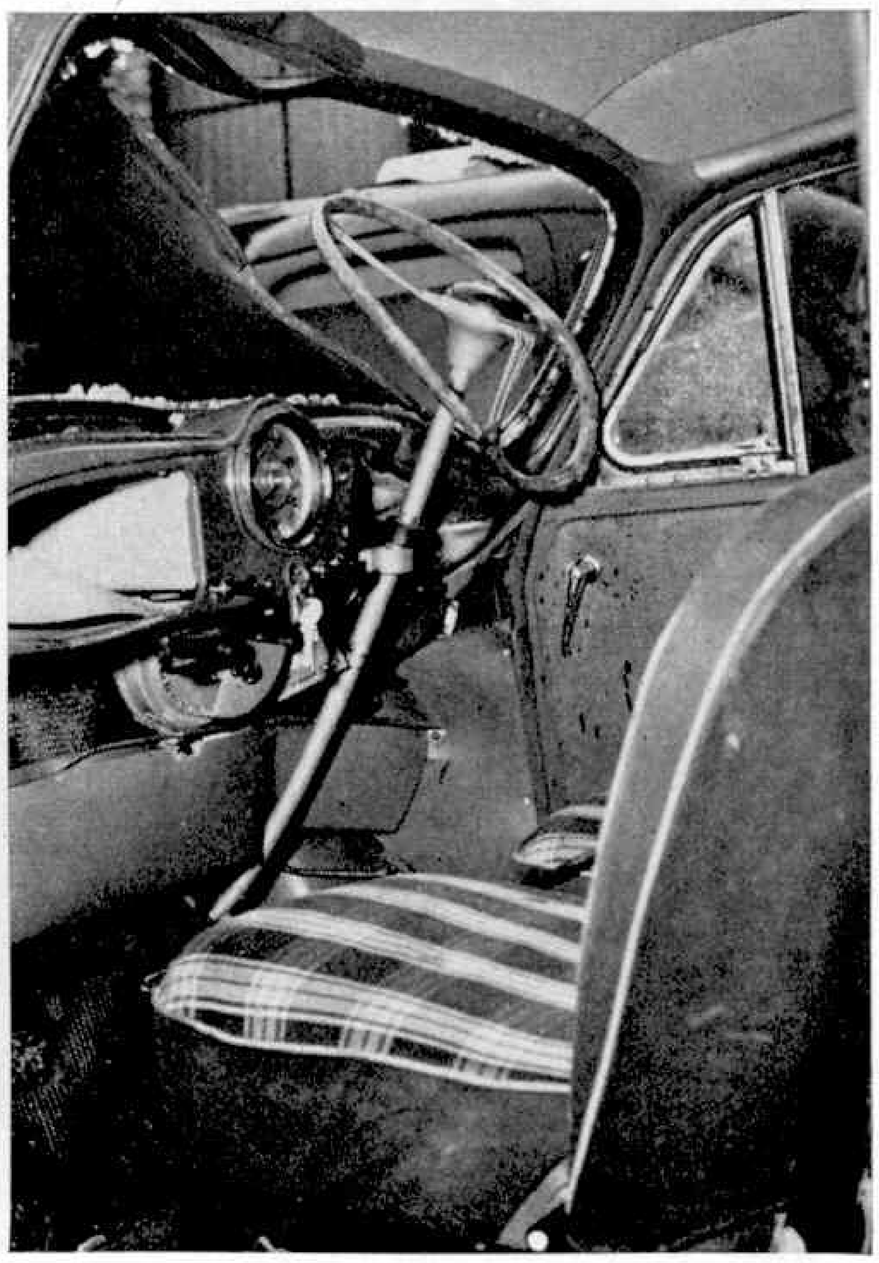
Much work, too, is being done in connection with vehicle and street lighting, skidding and braking problems, the efficiency of traffic signs, behaviour of road-users and accident prevention. Of course, such investigations are frequently supplemented by the co-operation of the Ministry of Transport, police, local authorities, car manufacturers, suppliers of road-making materials, and so on.

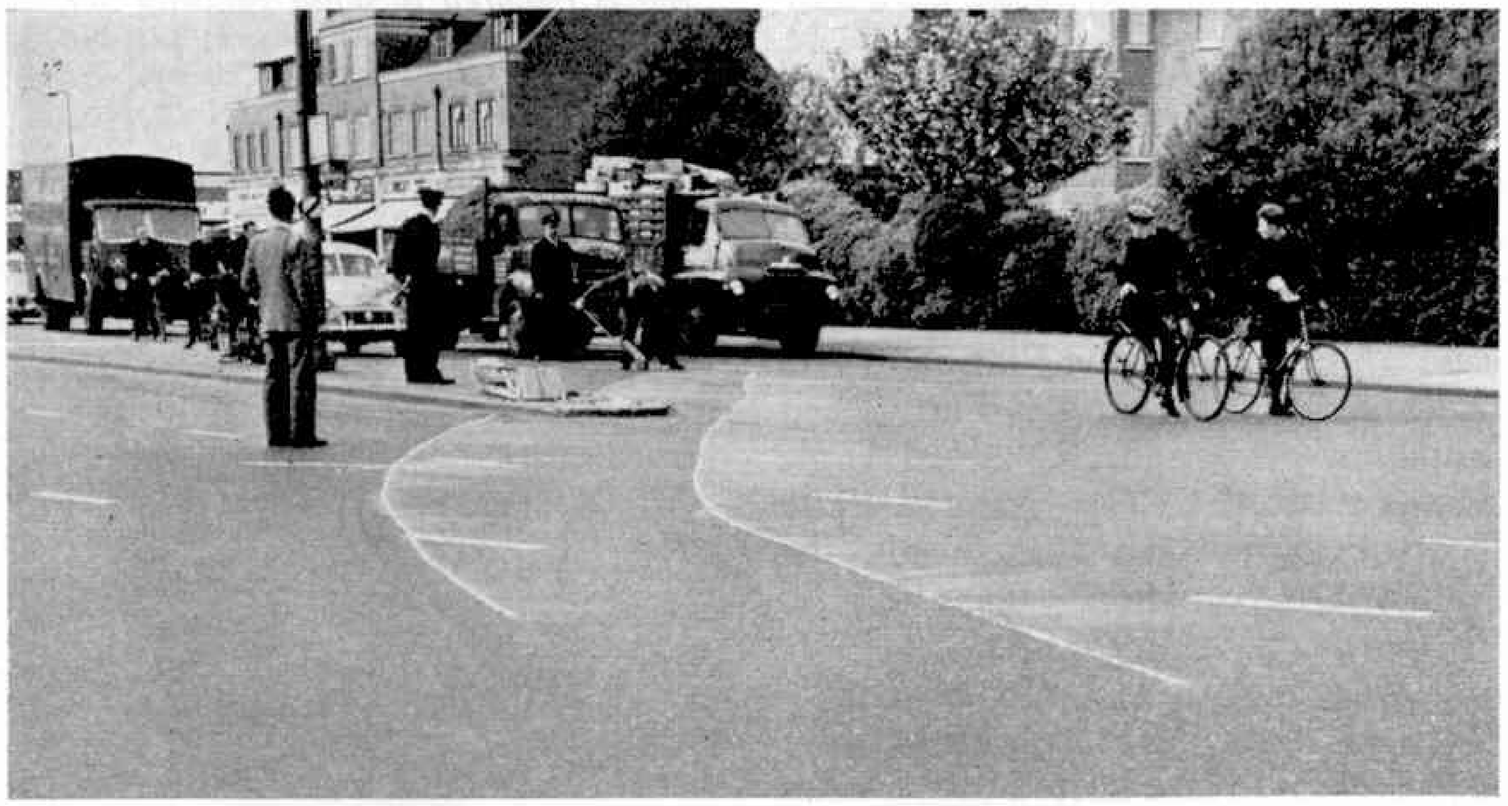
The investigations into the causes of skidding have revealed some most interesting information. For instance, it has been found that the trend for drivers to go into a skid in accidents decreases with advancing age. Comparing the figures for men and women, on dry roads, at all ages, the skidding rate is higher for men than for women; on wet roads the reverse is the case up to 30 years of age, but above this age the skidding rate for women is again lower than that for men.

It appears there is a general trend for newer cars to skid more frequently, which is believed to be due to increased engine power and performance.

Another important part of the laboratory's work is that of "on-the-spot" accident investigations. These detailed studies, which began in 1956 at Slough and Windsor, have now been extended to include the Staines area of Middlesex, and it is expected that the scope of the work will eventually spread to other districts. In these inquiries, a team of three or four, including a physicist, an engineer, and a

The picture below illustrates that failure of the front seat as the car is struck from the rear causes the driver to lose control. The Road Research Laboratory has collected valuable data about frontal collision. Steering column deformations such as that shown on the right are particularly noted.





Above: The rear view of Langley Hall, headquarters of the Road Research Laboratory. Below: A Road Research Laboratory investigation team at the scene of an accident. All the pictures illustrating this article appear by courtesy of the Central Office of Information. Crown copyright reserved.

photographer, proceeds to the scene of an accident as soon as a report is received from the police. A series of photographs is taken of the damage to vehicles or other objects, and notes are made of road features and any other relevant evidence.

Although this section of research is comparatively new, some valuable and vital information has emerged. For instance, one of the most striking features discovered is the frequent failure of vehicle seat frames or fixings; in some cases, failure of a seat has undoubtedly aggravated the injuries sustained by a vehicle's occupants. Another discovery is the way in which different steering-column assemblies deform in head-on collisions. A yielding rather than a rigid column will reduce the severity of the injuries to the driver of a vehicle.

One rather surprising outcome of investigations is the superiority of toughened over laminated safety glass as regards the likelihood of injury to vehicle occupants.

In contrast to America, where similar investigations are taking place, about 15 per cent. of car occupants are completely ejected from the vehicle by a collision, but only 2 per cent. have been ejected through the doors of British cars opening. There seems to be a tendency for the doors of British cars to jam, causing the occupants to suffer injuries by being buffeted inside the car.

Recently, after years of patient experiments, laboratory scientists have discovered a way of beating the snow and ice menace on roads in winter. The achievement will undoubtedly prove a boon to every road-user. The road—it has been found—can be turned into a huge "wire" by mixing graphite powder with surfacing material and feeding into it electricity. The powder acts as a powerful conductor and spreads the current evenly over the whole road. The cost of laying the surface would be about £2 a square yard.

The good work of the laboratory is known the world over, and requests for information are dealt with by the library which holds about 40,000 books and pamphlets. The library also sends the laboratory's publications to organisations and individuals in all parts of the British Commonwealth and in nearly every country in the world. In exchange, it receives much material which serves to keep the laboratory in close touch with developments abroad.

A further link with countries outside Britain, and housed in a spacious, recently-completed building at Harmondsworth, is the Tropical Road Research Section, which not only co-operates with overseas governments in research but also acts in an advisory capacity.

Wherever the motorist may drive he can be sure that his safety and protection is the foremost thought of the scientists at the Road Research Laboratory, and he should indeed be grateful for the benefits he enjoys as a result of their good work.

ANSWER TO READER'S QUERY

M.M. readers will remember that in the January 1962 issue Bill Read of Pontefract asked about an elaborate sandstone post box he came across at Machrie Road End, Shiskine, while on holiday in Arran. He wondered if any *M.M.* reader could tell him why this post box had been erected.

An answer comes from reader Charles Hendry of Bank House, Blackwaterfoot, Isle of Arran, who states "The post box at Machrie Road End in Arran was built to the order of the Duke of Hamilton 60 or 70 years ago. The stones were taken from the Machrie Water.

"The builders were given a certain number of days in which to build it, but as they had finished before the time they filled in the rest of the time by carving elaborate designs on the stones, but they have no meaning. Originally the pillar was much bigger, but the road has been raised about two feet."

More R.A.C. Help For Motorists Going Abroad

New moves to take the headaches out of foreign touring were announced recently by the R.A.C. In future, motorists taking their cars abroad will be covered by a special £200 Air Credit Voucher enabling them or their passengers to fly back to the United Kingdom in case of emergency. The voucher can be exchanged for air tickets at any office of B.E.A. in Europe, the Levant or North Africa. In addition to their air voucher, the R.A.C. is also supplying credit cards to the value of £50 to cover every conceivable touring hazard.

In the event of car breakdowns which cannot be dealt with on the spot, or in the event of the driver's illness preventing him continuing his holiday, the R.A.C.'s Foreign Touring Service will arrange free transportation by train or hired car for driver and passengers, and return of the vehicle without charge.

This is in addition to the famous "Flying Doctor" service which flies spare parts out to stranded motorists. This service "rescued" hundreds of people during 1961 and supplied parts ranging from a complete Dormobile engine to half-shafts for a 1927 Baby Austin.

Another new service this year will be coloured and layered strip map itineraries, supplementing the R.A.C. Continental Handbook.

The only motoring organisation to provide a complete touring and travel service, the R.A.C. will book passages, reserve hotel accommodation, provide route cards and maps, international driving permits and carnets (where necessary), G.B. plates, yellow headlamp discs and a new simple combined insurance for baggage, accident risk and sickness.

Also available are several interesting inclusive car tours. Full details of the R.A.C.'s foreign touring service are in the 1962 edition of the booklet *Touring and Motoring Holidays with the R.A.C.*, available from all R.A.C. offices.

RAILWAY SERVICE CRANE

THIS realistic but simple model is constructed as follows:

The bogie is built-up from a $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flanged Plate 1 and two Semi-Circular Plates 2, with the centre holes of four Curved Stepped Strips used as the bearings for the axles which are $3\frac{1}{2}''$ Rods. On each axle two 1″ Pulley Wheels are fixed to form the wheels.

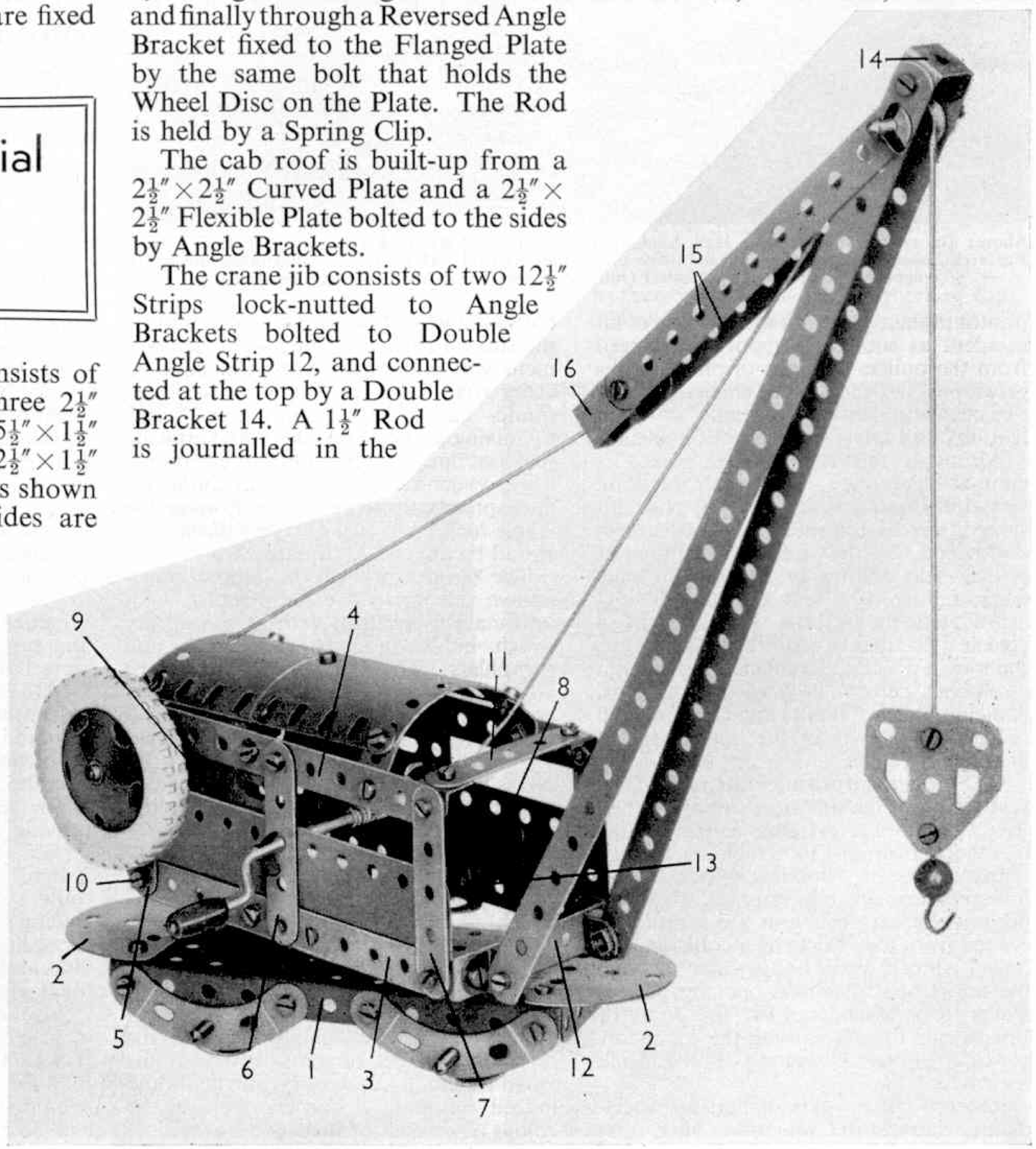
Spanner's Special Section for Juniors

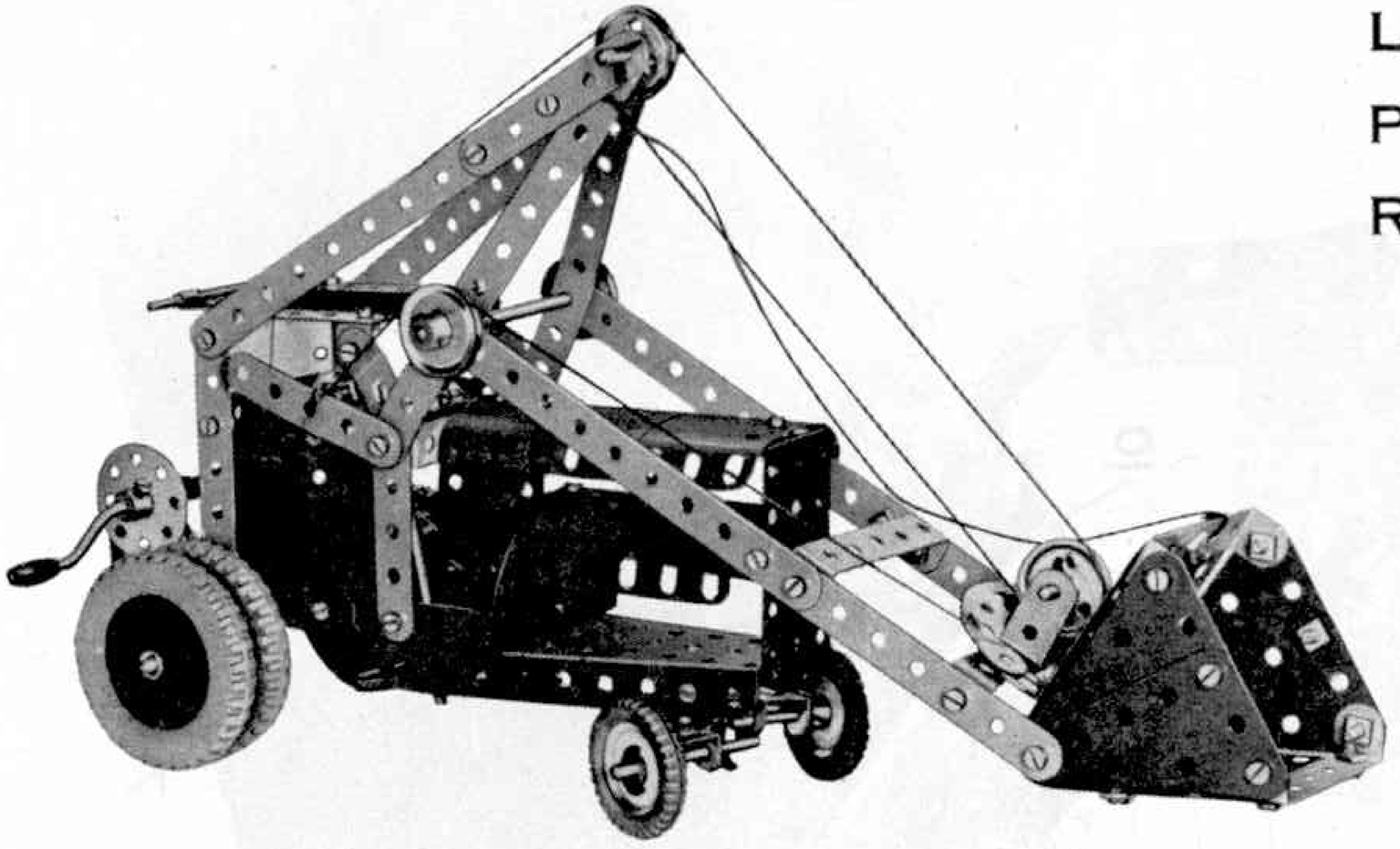
Each side of the cab consists of two $5\frac{1}{2}''$ Strips 3 and 4, three $2\frac{1}{2}''$ Strips 5, 6 and 7, a $5\frac{1}{2}'' \times 1\frac{1}{2}''$ Flexible Plate 8 and a $2\frac{1}{2}'' \times 1\frac{1}{2}''$ Flexible Plate 9, arranged as shown in the illustration. The sides are joined at the rear by a $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strip held by bolts 10, to which is bolted a $2\frac{1}{2}'' \times 2\frac{1}{2}''$ Flexible Plate joined to each side at the top by an Angle Bracket and overlayed by a $2\frac{1}{2}''$ Strip. At the front, the sides are joined by a $2\frac{1}{2}''$ Strip 11 bolted to Angle Brackets on Strips 4, and a further $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strip 12. A Trunnion 13 is bolted to each side through the fifth and seventh holes of the Strip 3 and these are connected by an 8-hole Bush Wheel with its boss placed upwards. A 2″ Rod is journalled in this Bush Wheel and it also passes through an 8-hole Wheel Disc, spaced apart by two $\frac{3}{4}''$ Washers and two Fishplates. It then passes through a further 8-hole Wheel Disc, bolted through one of its holes to the Flanged Plate 1, through the Flanged Plate itself and finally through a Reversed Angle Bracket fixed to the Flanged Plate by the same bolt that holds the Wheel Disc on the Plate. The Rod is held by a Spring Clip.

The cab roof is built-up from a $2\frac{1}{2}'' \times 2\frac{1}{2}''$ Curved Plate and a $2\frac{1}{2}'' \times 2\frac{1}{2}''$ Flexible Plate bolted to the sides by Angle Brackets.

The crane jib consists of two $12\frac{1}{2}''$ Strips lock-nutted to Angle Brackets bolted to Double Angle Strip 12, and connected at the top by a Double Bracket 14. A $1\frac{1}{2}''$ Rod is journalled in the second hole of the $12\frac{1}{2}''$ Strips and this carries a $\frac{1}{2}''$ loose Pulley and two $5\frac{1}{2}''$ Strips 15 joined by a Bent Stepped Strip 16. Movement of the jib is controlled by a cord running from this Bent Strip 16 to a 4″ Rod journalled in Strips 5 and held in place by a Road Wheel and a Spring Clip. The load hook assembly consists of two Flat Trunnions and a Small Loaded Hook.

Parts required to build Railway Service Crane: 2 of No. 1; 6 of No. 2; 8 of No. 5; 2 of No. 10; 1 of No. 11; 10 of No. 12; 1 of No. 15b; 2 of No. 16; 1 of No. 17; 1 of No. 18a; 1 of No. 19g; 4 of No. 22; 1 of No. 23; 1 of No. 24; 2 of No. 24a; 6 of No. 35; 54 of No. 37a; 50 of No. 37b; 1 of No. 40; 1 of No. 44; 2 of No. 48a; 1 of No. 52; 1 of No. 57c; 4 of No. 90a; 4 of No. 111c; 2 of No. 126; 2 of No. 126a; 1 of No. 187; 2 of No. 188; 2 of No. 189; 2 of No. 190; 1 of No. 200; 2 of No. 214.



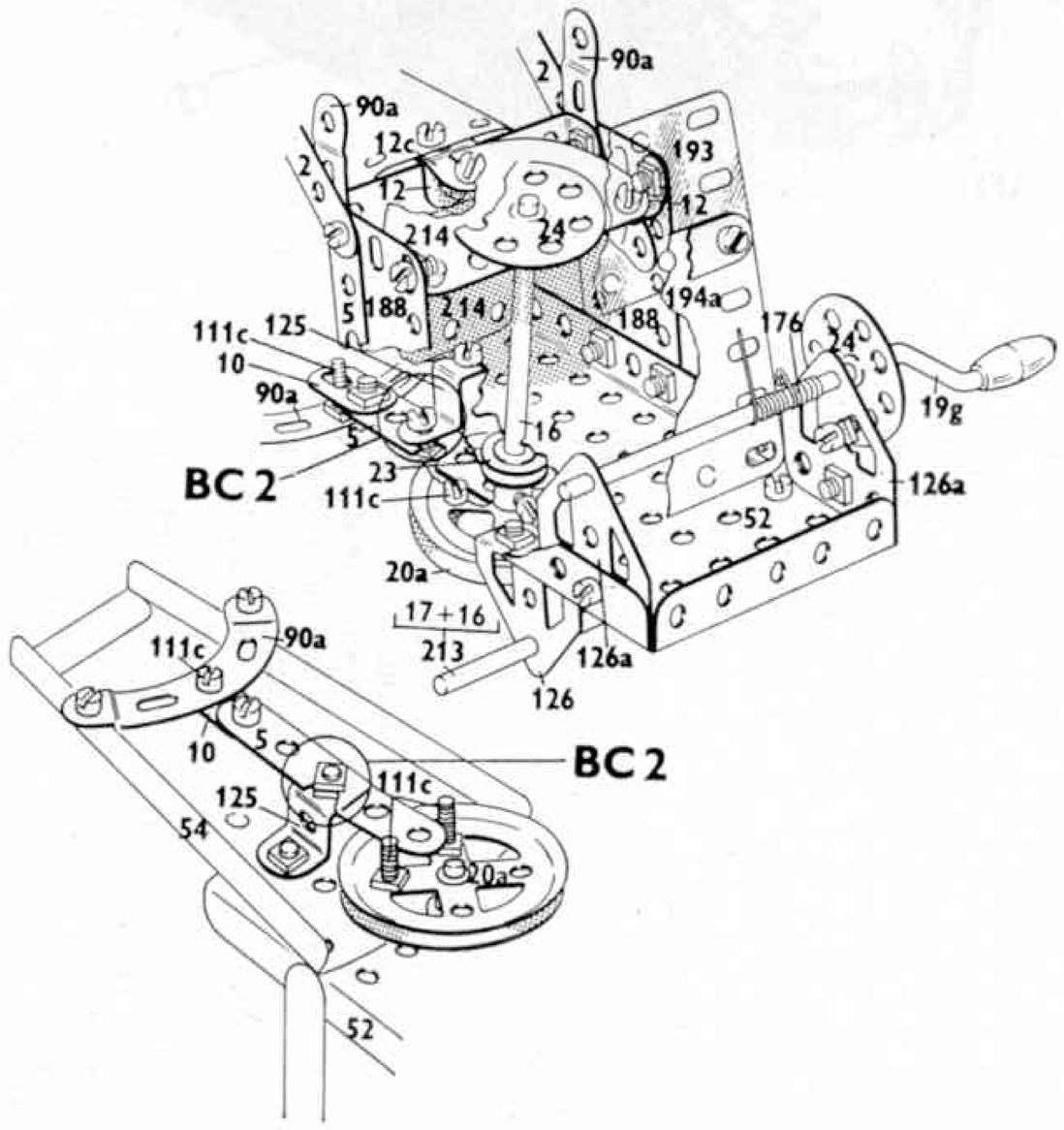


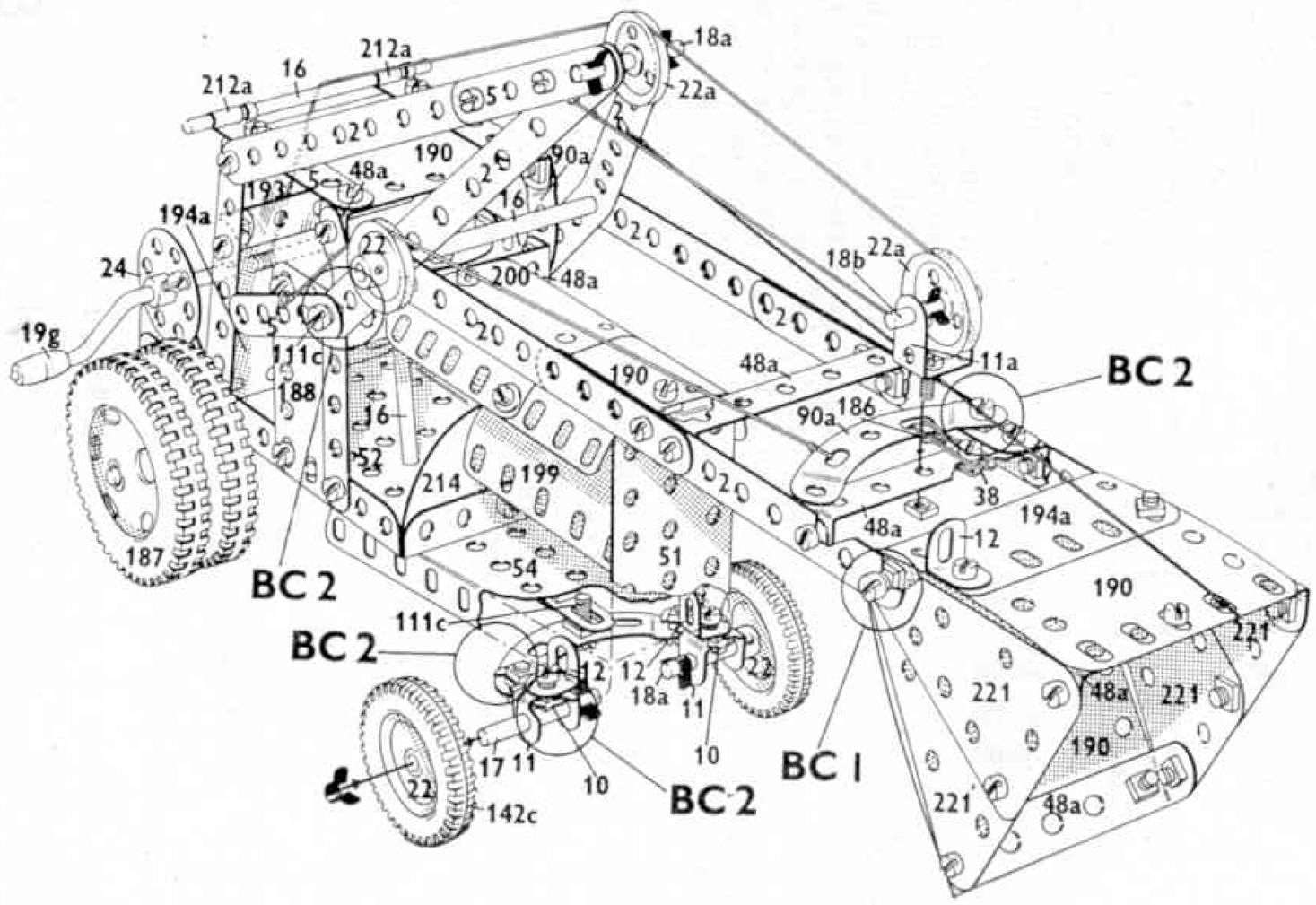
LOADING SHOVEL: OUTFIT NO. 4

PANEL BELOW SHOWS PARTS REQUIRED AND PART NUMBERS

4.9

8 – 2	1 – 23	2 – 126
2 – 3	2 – 24	2 – 126a
9 – 5	8 – 35	2 – 142c
4 – 10	93 – 37a	1 – 176
2 – 11	76 – 37b	1 – 186
1 – 11a	14 – 38	4 – 187
10 – 12	2 – 38d	2 – 188
1 – 12c	1 – 40	4 – 190
4 – 16	1 – 48	1 – 193
2 – 17	6 – 48a	2 – 194a
2 – 18a	1 – 51	1 – 199
1 – 18b	1 – 52	1 – 200
1 – 19g	1 – 54	2 – 212a
1 – 20a	4 – 90a	1 – 213
4 – 22	6 – 111c	2 – 214
2 – 22a	1 – 125	4 – 221





FIDLER'S BLOCK-SETTING GEAR

Pick Of The "Pops"

THE massive concrete blocks of which breakwaters and sea-walls are constructed are often laid horizontally in the same way as the bricks of an ordinary wall, but in many cases a more complicated form of setting is required, and the blocks are set at an angle—or, as it is technically termed, "on the inclined bond". In this way the breakwater is made much more capable of resisting the assaults of the sea than it would be if the blocks were set in the more usual position with their faces vertical.

By

"SPANNER"

The problem of slinging the blocks for setting on the inclined bond, however, presents some difficulty, a fact which will be more readily appreciated by anyone who has constructed a model of a crane and attempted to set a small block of wood or stone in the manner described. The problem is difficult even with a model, but in actual practice it is considerably more complicated, for the blocks must be lowered to within an inch or less of their correct position, and the movements controlled to a nicety even though they may have to be carried out in heavy seas and stormy weather.

The difficulty is solved by the ingenious tilting mechanism known as Fidler's patent block-setting gear. Photographs of this gear, together with a detailed account of its action, appeared in the Magazine some years ago, and as the mechanism proved of great interest to model-builders keen on constructing giant block-setting cranes I have decided to repeat the details here. The Meccano model of Fidler's Gear differs from the actual mechanism in detail only and functions in exactly the same manner as its prototype.

The mechanism is illustrated on this page. Two pairs of 5½" Curved Strips 1, bearing twelve Fishplates 2 and spaced apart by the thickness of two Washers, represent the massive notched beam of the Fidler's Gear. This beam hangs from a swivelling joint, the whole being suspended from a special four-sheaved pulley block. The swivel bar consists of a 2" Rod 12 bearing at its lower end, a small Fork Piece on which the beam is pivoted, and is itself supported in the pulley block by means of a Collar. The rotating movement of the beam on the central swivel is controlled by a Worm Wheel 15, which meshes with a ½" Pinion 16 secured to the vertical swivel bar.

Two links 3, each formed by a pair of 2" Strips and two ¾"

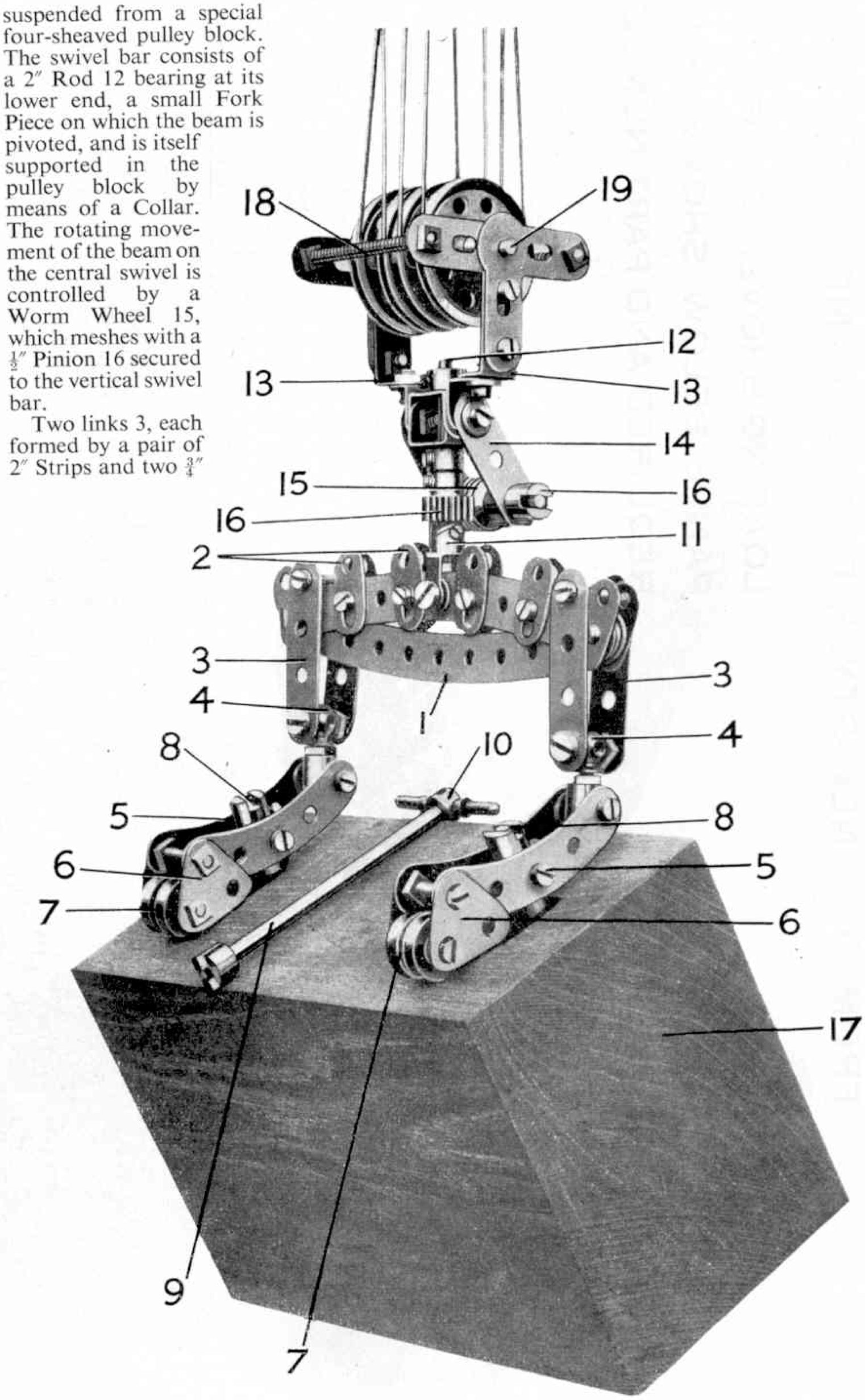


Fig. 1.

Bolts, are suspended from the outer notches of the beam. The lower $\frac{3}{4}$" Bolts of these links pass through the smooth bores of Handrail Supports 4 that are screwed into the longitudinal bores of two Threaded Bosses, where they are secured in position by nuts screwed tightly against the tops of the Bosses. Two $\frac{3}{4}$" Bolts, passed through the transverse holes of these Threaded Bosses, and held in place by lock-nuts, support the crossheads 5. Each crosshead consists of two $2\frac{1}{2}$" large radius Curved Strips to which two 1" Triangular Plates 6 are rigidly secured by means of a $\frac{3}{4}$" Bolt and nuts. A roller consisting of two $\frac{1}{2}$" loose Pulley Wheels 7 is mounted on a $\frac{3}{4}$" Bolt secured between each pair of Triangular Plates.

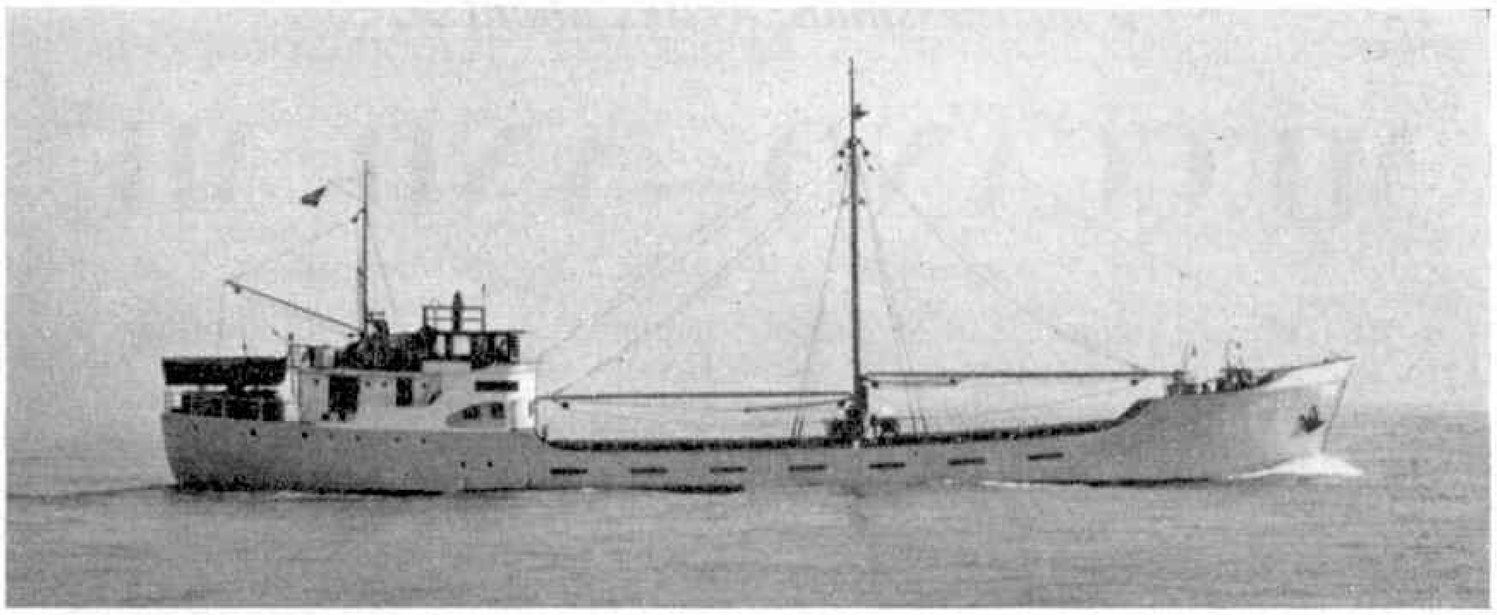
From the middle point of each crosshead hangs a Lewis bar. This bar is made by securing a Coupling across the end of a 5" Rod 8, the upper end of the Rod being attached to a Collar or a "spider" from a Universal Coupling. The Collar is pivoted on two ordinary bolts passed through the middle holes of the crosshead 5 and secured by nuts screwed firmly against the sides of the Collar to prevent the bolts from binding on the Rods 8. The upper end of each Lewis bar is fitted with the female portion of a Dog Clutch, and the male part of one Clutch should be attached to a Rod 9 to form a key with which the Lewis bars may be turned. The key is provided with a handle consisting of two Threaded Pins screwed into a Collar 10. The same arrangement is used to turn the Worm Wheel 15 that controls the swivelling movement of the beam. The Fork Piece 11 from which the beam is suspended is secured to a 2" Rod 12 journalled in two Double Brackets bolted, one within the other, to Angle Brackets, which in turn are secured to the 1" × $\frac{1}{2}$" Angle Brackets 13 in the pulley block. Two $1\frac{1}{2}$" Strips 14, which carry the Worm Wheel 15 on a $1\frac{1}{2}$" Rod, are secured by means of $\frac{3}{8}$" Bolts to the pulley block, from which they are spaced away by two Washers mounted on the shanks of the Bolts.

It will be observed that the pulley block is constructed from two pairs of old style Simple Bell Cranks bolted to the 1" by $\frac{1}{2}$" Angle Brackets 13, their outer arms being spaced apart by means of the 2" Threaded Rods 18. Those who do not possess any of the old style Bell Cranks should use the modern part No. 128 or some alternative form of construction. The sheaves consist of four $1\frac{1}{2}$" Pulley Wheels, one of which should be secured to the Axle Rod 19 in order to retain the latter in position.

In actual practice the concrete blocks which are to be set by Fidler's Gear are specially made with two perpendicular holes running completely through them. The holes are of sufficient width across one of their sections to take the T-shaped pieces at the ends of the Lewis bars. The blocks are also recessed at the lower ends of the vertical holes in order to prevent the Lewis bars from fouling the breakwater while the blocks are being set.

A New Series For "M.M." Readers

COASTER COMMENTARY



The motor vessel "Lireco", a typical Dutch coaster of 350 tons. Picture by John G. Callis.

WHEN a coaster admirer overhears the all-too frequent remark—"It's only a coaster", given in an undeniably disparaging tone of voice, such cursory dismissal of these interesting little vessels is apt to make his blood boil! It is true that they will be dwarfed in size by ocean-going liners or cargo ships but it does not follow that their importance should be underrated. Although they cannot carry such large quantities of merchandise, they make a strong link in the vast transport chain, with the added advantage that their small size enables them to go where a "big sister" cannot possibly go.

By

ROBERT GORE

What is a coaster? By and large, these little ships fall within two defined categories—dry and liquid cargo carrying—and within this range there are very many variations.

Throughout the world coasters are engaged on almost every kind of trade, and this sometimes means that they have to be specially built to meet the requirements of a particular cargo or port; alternatively, existing ships are modified for the same purpose. It seems they can be used for practically anything, and whereas they mostly do tramping from one port to another some are on regular trading routes where they might, quite properly, be regarded as liners. They certainly do not (as their name suggests) consistently sail along the coast, for they go far beyond sight of land and can cross an ocean.

What does a coaster look like? We have established that the coaster is a small ship—somewhat broad of beam—and the fact that we may know what duty one is engaged upon will not help us much, if at all. So as to give as much uninterrupted space as possible for handling cargoes in and out of the holds, the engines are placed towards the stern. A coaster also has a high forecastle, a raised quarter-deck above the engine room upon which is piled the superstructure, including the wheelhouse, funnel, accommodation, etc. This rather curious, and yet characteristic, bunched-up profile is generally common to all and might be accentuated when the ship has a well-deck between the forecastle and quarter-deck. Large coasters may have a bridge amidships.

One cannot imagine another class of ship that could give a ship spotter greater opportunity for exercising skill in recognition, and if a motto were ever required to be chosen for the coasting fleet what could be better than to borrow the Royal Artillery's "Ubique", which translated means "Everywhere?"

THE FIGHTER AIRCRAFT POCKETBOOK

This beautifully-produced book traces the progress of fighter aircraft between the years 1913 and 1961. It deals with aircraft of all the major powers and brings home the startling advances in the development of flight within the past half century. The first world war is well covered and there are some excellent photographs of Allied and German machines. Pictures of fighter aircraft produced between the wars reveal their progressive changes in shape, and the survey of that period in picture and text offers a year by year comparison of the development of the world's air forces. There follows a review of the second world war period until ultimately the sleek, fast piston-engined machines gave way to the products of the jet age. Written by Roy Cross and published by B. T. Batsford Ltd., the book costs 9s. 6d.

• In South Africa, 40 years ago, a young boy took up the Meccano hobby. A deep interest in Hornby Trains was a natural development. Below, that same boy, now a businessman, writes about . . .

MECCANO—AND ME

BY

F. G. HILLS

I FIRST became interested in Meccano in 1921. I was seven years old at the time, and one night my mother took me to our landlord's house. There, I saw a Meccano model of a lorry which his nephew had constructed. After that, the silver strips with holes in them fascinated me. ("Old hands" will remember that Meccano was all silver then.)

However, it was the aftermath of the first world war and my mother, a widow, could not afford much in the way of luxuries. Still, when you become deeply interested in something there is always a will and a way. I always seemed to find a friend who owned a Meccano Set. In this way, my interest never waned.

Christmas 1926, and something big happened in my life. An aunt gave me a Hornby Clockwork Train Set for a present. For the moment Meccano was forgotten. One of my uncles, who was mechanically minded, made me a mould and I began to cast my own lead wheels. Although only twelve years old, I was quite an able sheet metal worker and soon I was making my own trucks and fitting them with Meccano couplings.

Christmas 1928, and I got my first Meccano Set. A whole new vista opened up for me when I combined Hornby Trains and Meccano. I bought a Meccano No. 2 Clockwork Motor and built a locomotive to run on my Hornby tracks—wonderful days!

In 1929 I went to a new school. One day, during a geography exercise, I noticed that the boy next to me kept lifting his desk lid. I thought he was cribbing, but eventually saw that he was reading a magazine. After class I asked to see it. That was when I saw my first *Meccano Magazine*—and from that day to the present I have not missed an issue.

With my mother's permission an order was placed with the local newsagent. The end of the month could never come quickly enough for me. I think that when it was time for the new issue to appear I knew the contents of the previous one off by heart.

In 1931 I started work. Things were not too good; the Depression was in full swing and money was scarce. Still, I always managed to scrape a few coppers together. Sometimes on Saturday afternoons I would cycle to Young's Field, our local aerodrome, and help to launch gliders for the local gliding club. Thirty or forty of us would pull long ropes and run our hearts out to try to get the gliders airborne. Sometimes they managed to glide about a hundred yards and to us that was a marvellous feat. For that I would, perhaps, get a sixpence or a shilling—quite a lot of money in those days.

* * * *

By 1933 I had built a large Hornby Railway and also owned a comprehensive Meccano Set. Then the blow fell. My mother and I were living with an uncle and in November 1933 he was transferred to East London. The beloved railway was taken up and sold, as we were not sure of the housing situation in the area into which we were moving. The Meccano Set went with us.

But economic conditions were still far from good, and in March 1934 I was back in Cape Town looking for work. The Meccano Set was sold, for I needed money badly, but I still obtained the *Meccano Magazine* every month, and it proved to be a great consolation.

In 1935 I secured a better position and by 1936 had set up a home with my mother again. But beyond a large selection of Meccano gears and rods, which I used for experimenting with various kinds of movements, I did not get going again until 1938. I purchased a large quantity of Hornby "0" Gauge track and points and operated a railway with Hornby rolling stock and clockwork locomotives, and one Bassett-Lowke 4-4-0 *Enterprise* steam locomotive.

* * * *

War broke out in 1939 and when I joined up, I again sold up everything. During the war years, my mother kept all the *Meccano Magazines* for me. By the time I got back to "civvy street" I had gained myself a wife who, I'm pleased to say, is very interested in my hobbies.

There were no supplies of Hornby and Meccano available in my locality after the war and, to make it worse, import control was introduced in 1949. To keep my mind occupied I tried my hand at photography,

(*Continued on page 216*)

Mr. F. G. Hills enjoys his "Meccano Magazine".

780 THE MECCANO MAGAZINE

British Air Triumph

Schneider Trophy Contest Won at 328 Miles an Hour!

By Our Own Correspondent

Schneider Trophy Race—Comparative Speeds

A page from the "Meccano Magazine" of 1929.

WITH THE SECRETARY

Club and Branch News

NEW CLUB OFF TO FLYING START

IN last month's *M.M.*, you may remember, I described how I had visited the recently-formed Meccano Club at Bury Y.M.C.A., and I promised to tell you a little more about it. Well, this Club has indeed got off to a most enthusiastic start under the leadership of Mr. David Whatmough, with a room specially provided by the Y.M.C.A. authorities, who have an admirable and hard-working Secretary for the cause in Mr. Ronald Morris. The members of the Club have worked assiduously in getting the room ship-shape, and I had the pleasure of talking to them in the presence of some of the Y.M.C.A. officials.

The Club has already formed four Houses, all named after famous engineers of days gone by. David Hill is Chairman of the committee, with David Worth as Vice-Chairman, Ian Plant as Secretary and Alan White as Treasurer, and each House has a "prefect" in charge of activities. The boys filling these roles are: Laurence Siddall (Brunel House), David Woodhead (Telford House), Stephen Rowland (Brindley House) and Malcolm Hulton (Stephenson House).

Among those at the inaugural meeting was Mr. Sam Taylor, Junior, of Bury, who is deeply interested in the work of the local Y.M.C.A. Mr. Taylor and his father have a Meccano agency in Bury and, indeed, the firm was among the first ever to sell Meccano products in the days shortly after its invention by the late Frank Hornby.

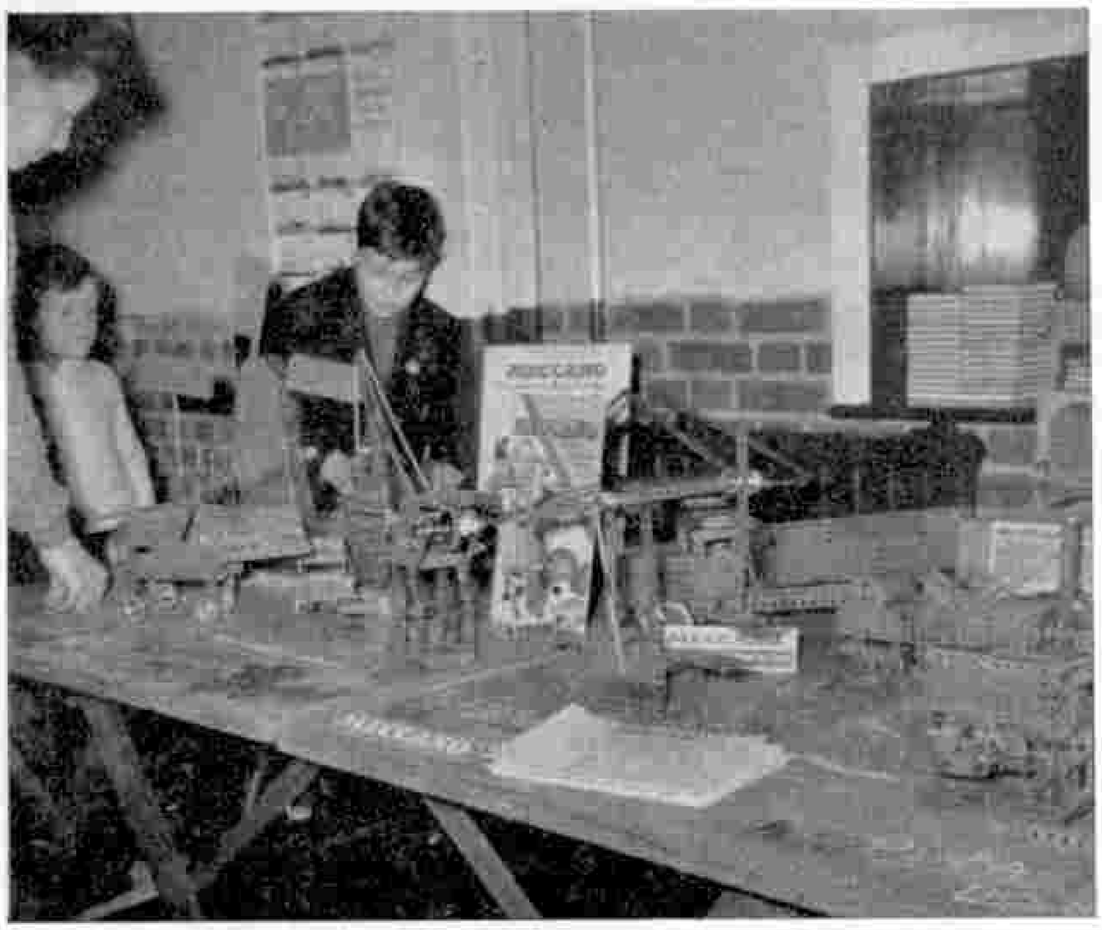
The boys were very thrilled and delighted when Mr. Taylor, Junior, told them that he and his father had decided to award a challenge trophy to be presented each year to the best model-builder in the Club, and so from the word "go" the members of the Bury Y.M.C.A. Meccano Club have got an incentive to aim at—and that is always a wonderful thing in life.

I was able to present Meccano Guild badges to all the boys present, and it may interest a lot of readers to know that this Club also has a limited number of girl members, three of whom have already shown an interest in the engineering activities which the boys of the Club are taking up. Women have taken their place in recent years in all aspects of professional life—as doctors, dentists, veterinary surgeons, scientists, Ministers of the Government and in many other important ways. It really comes as no surprise therefore that there are now at least three active girl members of the Meccano Guild.

CLUB NOTES

AUSTRALIA

MAYLANDS M.C.—The Club was again invited to take part in the Maylands State School Hobbies display. Most of the models displayed were those used for the two exhibitions of working models held at Baird's Ltd., as recorded in last month's *M.M.* The Club 1961 awards were as follows: Best and fairest, Trevor Criddle; Best model-builder and highest aggregate points, Reg. England; Highly Commended, John Carter; Most consistent, Roger Thompson, Trevor Criddle and Reg. England; Best trier, Rhys James. When word was received that the old Clubroom could be pulled down one weekend to clear the site for the new building, many members came along with appropriate tools. The old building that had served the Club so well for over 27 years was soon reduced to a mass of second-hand building material. *Secretary:* Mr. Trevor Criddle, 17 Kenilworth Street, Maylands, Western Australia.



Part of the excellent display of Meccano models at an Exhibition arranged by the Ashtead Free Church Meccano Club, Ashtead, Surrey.

NEW ZEALAND

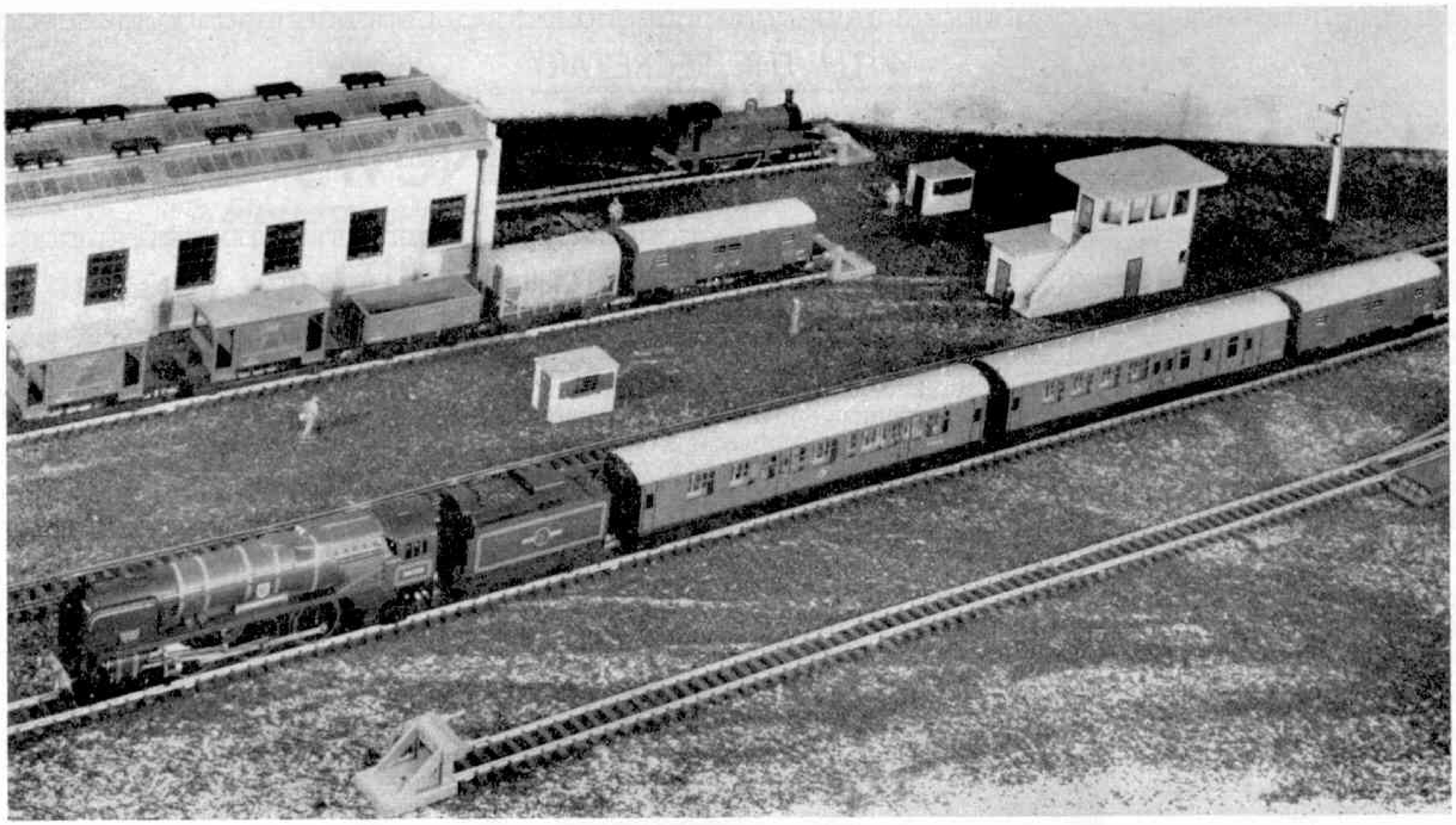
ST. JOHN'S (DUNEDIN) M.C.—1961 was a year of good and steady progress, with 33 meetings held between mid-February and Christmas, mostly in the "Blue Room" of St. John's Parish Hall. Club business was usually the first item, followed by a game or talk, and members were then given ample time in which to prepare their models for display and discussion. The models were then judged and awarded marks up to ten, the builder's age, ability and the size of his Outfit being taken into account. The standard of model-building was even higher than in 1960, and was undoubtedly helped by talks on the subject. Attention to detail and sturdiness of construction have been noticeable features of model-building generally during the Club year. A "marks ladder" was introduced, which showed at the top the member with the most marks. Bruce Collins, who stayed at the top of the ladder most of the year, gained the most marks and thus won the shield from Richard Mercier, the 1960 holder. *Secretary:* Mr. M. J. Salinger, 8 Maheno Street, Dunotter, Dunedin, New Zealand.

GREAT BRITAIN

WOODLEY C.E. (CONTROLLED) SCHOOL M.C.—A "heavy building equipment" competition resulted in some excellent models being built. The display was judged by Doctor C. J. Stratmann, a good friend of the Club whose help in getting it established is much appreciated. Richard Taylor was the winner, gaining maximum marks for his fine large model of a bulldozer. Trevor Batts, Danny Davis and Julian Mann tied for second place. *Secretary:* Mr. H. W. Mason, Church Road, Woodley, Reading, Berks.

BRANCH NEWS

AVIARY MODEL RAILWAY CLUB—The majority of recent meetings have been devoted to constructing the new 8 ft. × 4 ft. layout, on which two tracks have been laid down. The shield to be presented to the most industrious member of the year is still under construction. The boy who wins the shield will have his name engraved on it. *Under-Secretary:* Mr. Ian Witham, 69 Salisbury Road, Leeds 12.



New Southern Coaches

I AM sure you will welcome the appearance in our advertising pages this month of Hornby-Dublo Corridor Coaches in S.R. livery. It is clear from correspondence that many readers have been eagerly awaiting the advent of these vehicles, to supplement the excellent Hornby-Dublo Pullmans now so widely used on Two-Rail and Three-Rail layouts to form appropriate trains for the popular S.R. "West Country" 4–6–2 locomotives, Barnstaple *and* Dorchester. *In their fresh green livery, the new Corridor Coaches, Nos. 4054 First/Second and 4055 Brake/Second, strike something of a new note in Hornby-Dublo main line stock. Apart from the attractive colour, of which the S.R. people are rightly proud, there is no lining or any other decoration except for the usual markings, numbers and so on. The result is a somewhat plain, yet extremely striking, finish, as I am sure you will agree.*

From the constructional point of view, the new Corridor Coaches follow the standards now usual in new Hornby-Dublo coach building. Bodysides and bases are strong metal, as are the bogie frames, but the ends, roofs and underframe details are provided by means of plastic mouldings.

The colouring and detail of the bodysides are reproduced in a very pleasing manner by the tinprinting process, doorways, hinges, handles and handrails all being included. The vehicle numbers, prefixed, of course, by the letter "S", denoting Southern, are neatly carried out, as is the designation "Guard" on two of the doors of the Brake/Second, and the figure "1" that distinguishes the doors leading to the first-class section of the First/Second Coach.

The interiors are fitted up with seating and other details that are clearly visible through the plastic "glazing" employed for the window openings. The interior layout is of the standard side-corridor pattern, with seven passenger compartments in the First/Second vehicle and four in the Brake/Second. The compartments are separated from the corridors, and from one another, by partitions. These are modelled to imitate the usual upholstery in the compartments, while along the corridor sides windows and doorways are represented, some of the latter being clear, just as if the actual doors have been pushed back and left open—a neat and most realistic touch. Easy running is ensured by the fitting of the disc-type nylon wheels now familiar on Hornby-Dublo Coaches.

Hornby Railway Company

By the Secretary

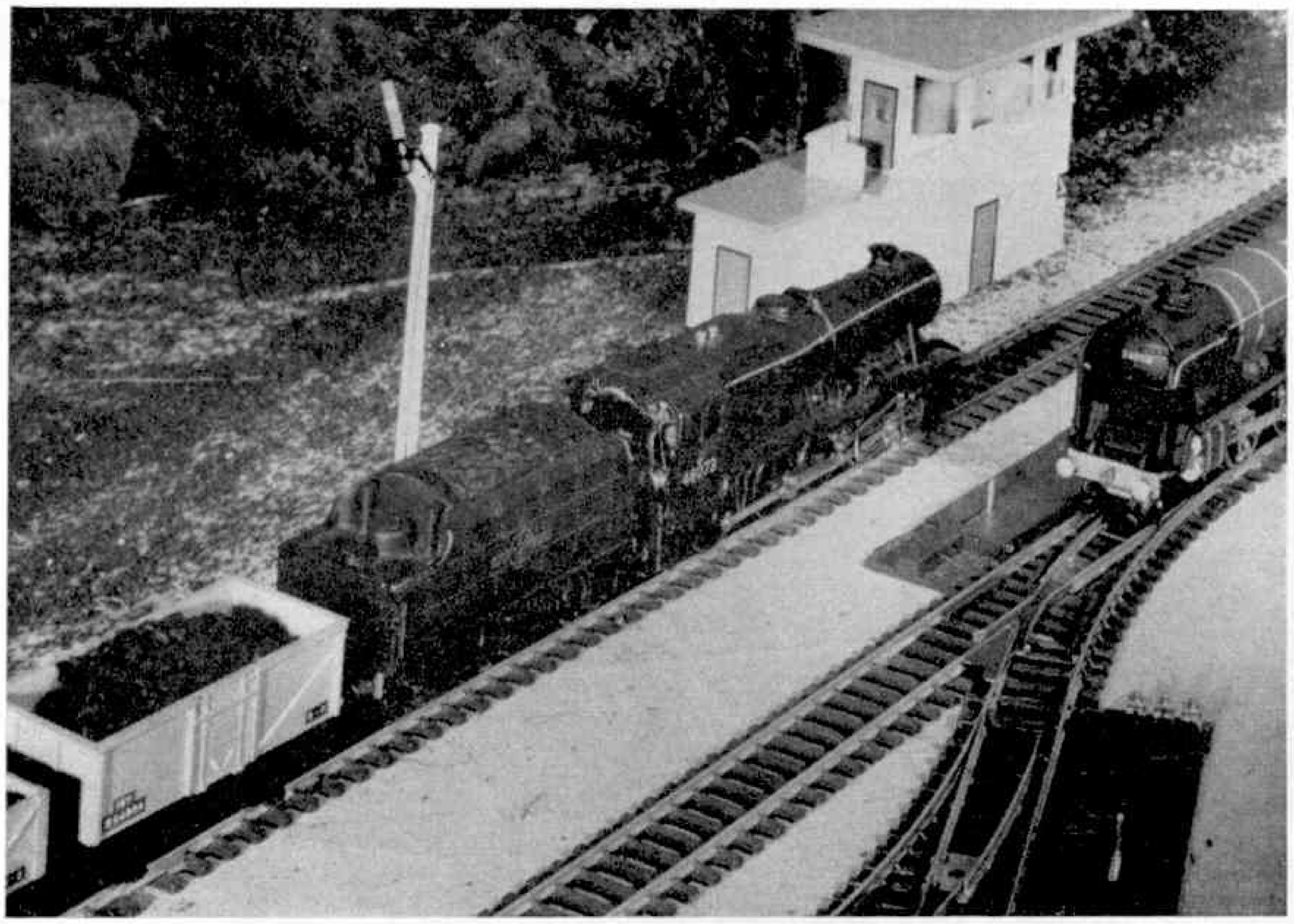
Southern Operations

With these fine new vehicles in service, all sorts of operating possibilities in miniature present themselves. Those who favour Southern practice on their layouts will lose no time in putting these new Coaches to good use. They make possible excellent representations of many of the standard Southern main line trains running in the Western section of that system and references to these appear, most conveniently, in R. A. H. Weight's *Railway Notes* this month.

If your layout is a big one, and you are able to deal with fairly long trains that make your West Country locomotive have to work for a living, the standard Bournemouth line or West of England services can readily be represented.

Even if your layout is a small one, and you can only muster two or three bogie coaches to a train, this will still be quite in order, because on certain sections of the Southern through portions, consisting of

In the picture above Hornby-Dublo S.R. 4–6–2 "Barnstaple" is hauling a train consisting of two of the new Corridor Coaches in S.R. livery that are referred to in these pages. An S.R. Utility Van is attached in the rear.



Up and down trains pass one another near a Signal Cabin on a Hornby-Dublo Two-Rail layout. The coal train is headed by a 2–8–0 locomotive, the other by S.R. 4–6–2 "Barnstaple".

just that number of vehicles, often make considerable stretches of their journey in charge of West Country 4–6–2s.

Again, it is possible for you to operate in miniature the numerous boat train services that ply between Southampton Docks and Waterloo to link up with liner sailings. For these Pullmans and standard corridor stock are in great demand, and it may often be that some trains will include vehicles of both kinds in their make-up. Here, then, is a chance to provide the variety in train working that always appeals to the miniature railway operator.

Some of this traffic involves a good deal of baggage and for this the Passenger Brake Van and the more recently-introduced S.R. General Utility Van will be most useful.

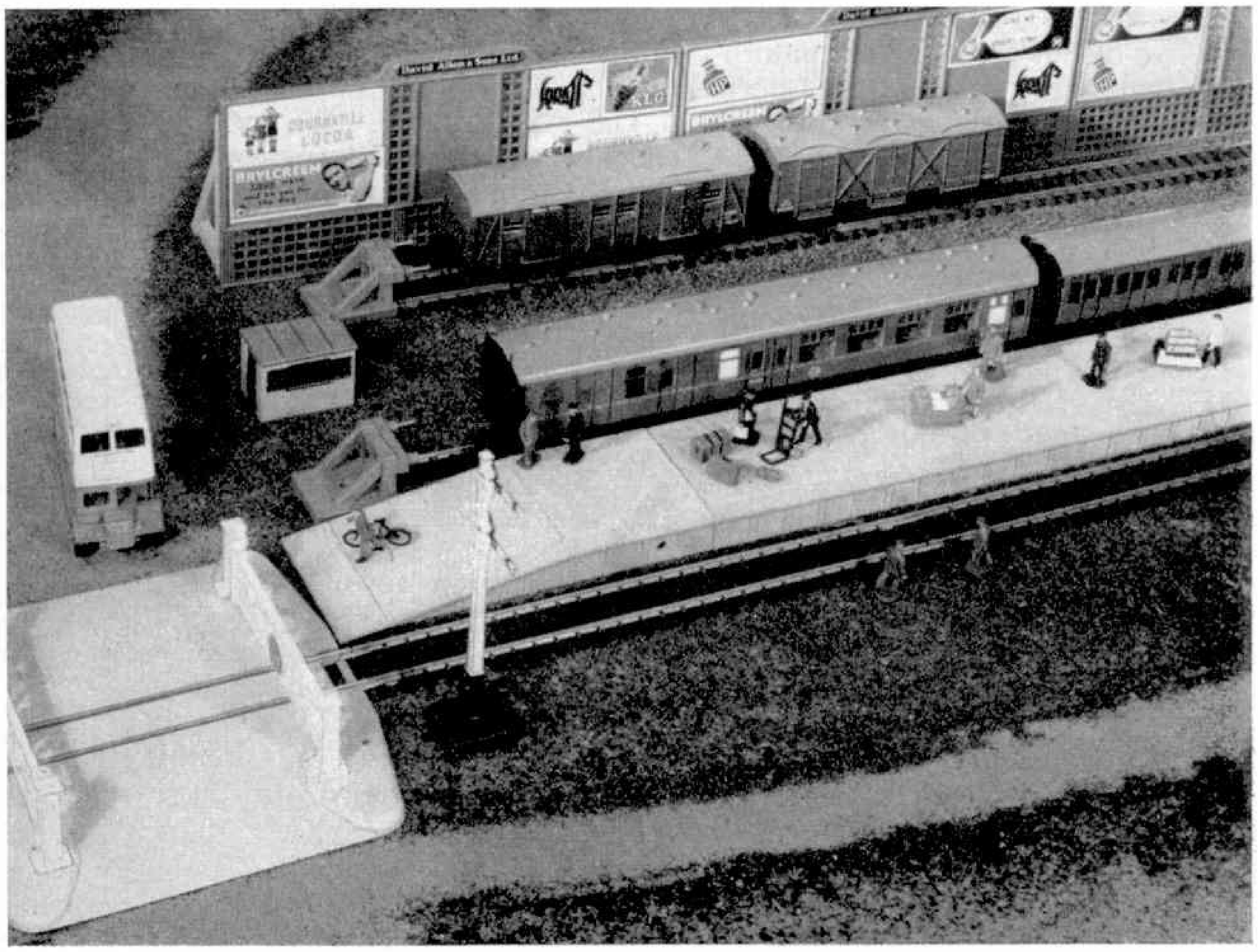
In addition to these activities, your operations with West Country locomotives and S.R. Corridor Coaches may quite well cover some of the through services connecting with other regions on which Southern stock can appear. Apart from those that take place regularly, it is possible for special workings to be required in connection with important sports events, as for instance, the forthcoming F.A. Cup Final. It is not unknown for trains of Southern stock, with Southern engines, to work through to Wembley on the L.M.R. You can, therefore, use your Southern models on a mixed layout, if you favour this sort of working, and I think that many people do nowadays in order to take advantage of the wide range of locomotives and stock available in Hornby-Dublo.

Little People Again

Now for a note about our third picture. This shows several of the miniature figures for Hornby-Dublo railways that we have met recently in these pages and includes all the components of the Dublo Dinky Toys Set No. 054 Railway Station Personnel which I described in detail last month. Even though the reproduction here is on a comparatively small scale you cannot help seeing how realistic the various items appear. The Mobile Bookstall and the Refreshment Trolley, with their Attendants, are ready to serve passengers for whom the train is being got ready. The general character of the scene is simple, yet very effective. I think the Brake/Second Corridor Coach at the rear of the train alongside the platform must be a through vehicle which has been attached to a local service simply for conveyance to a junction, where it can form part of a main line train.

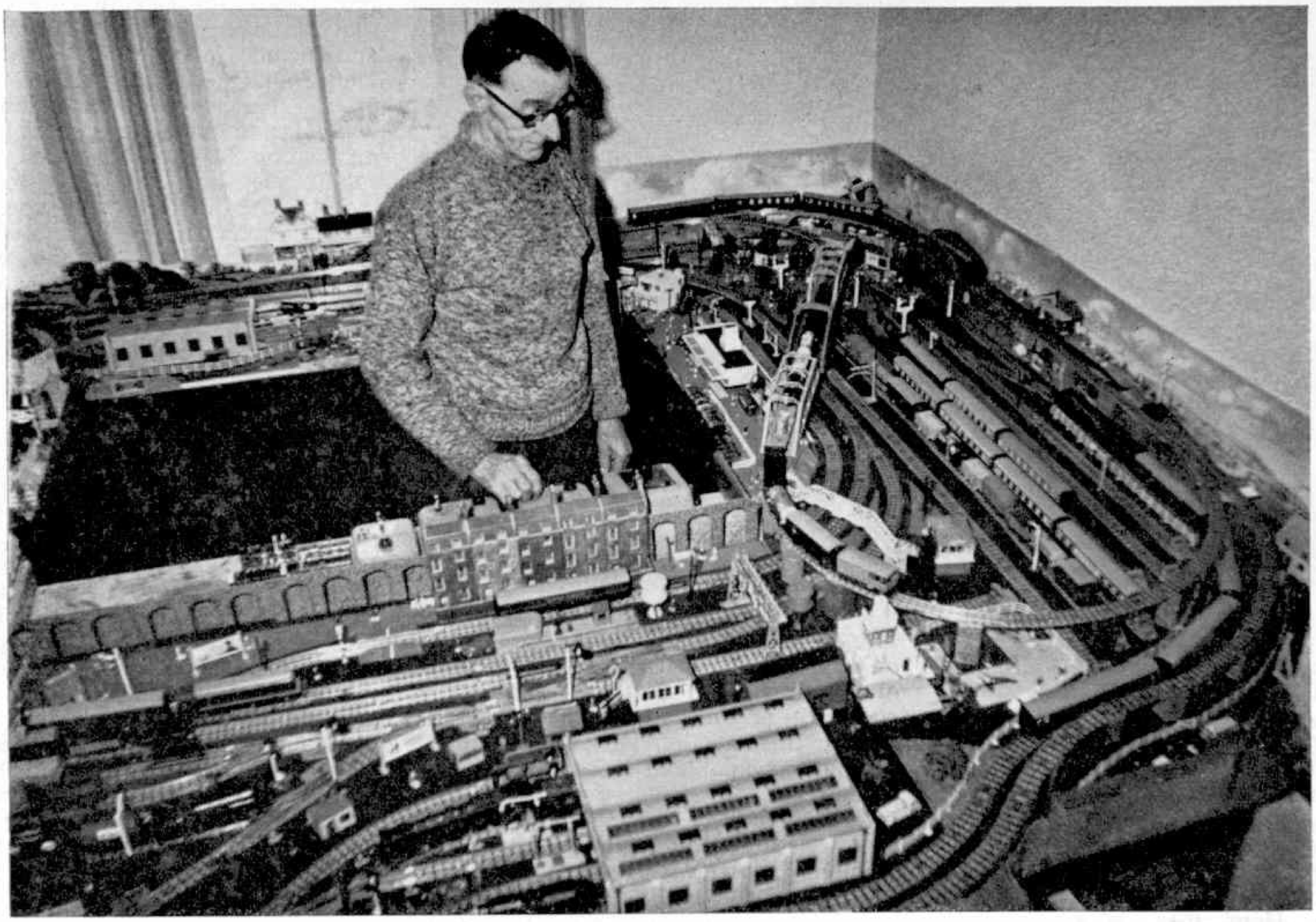
There are one or two other things in this picture that deserve comment. The Level Crossing looks well at the end of the platform ramp, and the Platelayers' Hut stands in an effective position between the two Buffer Stops. It is not necessarily used here for its intended purpose, but it can be one of the numerous little huts that are found up and down the line.

Finally, background interest is created by the use of the No. 765 Road Hoardings borrowed from the Dinky Toys system. They may be a little bit on the big side for Hornby-Dublo layouts, but in this situation they really have a part to play.



Some of the items in this platform scene are those of Set No. 054 Railway Station Personnel, described in last month's issue.

A THREE-RAIL SCHEME REVISED



IN two of our pictures this month —that on this page and the upper illustration on the next—you see Hornby-Dublo enthusiast C. H. Meyerhoff, of Buckie, Banffshire, busy with his extensive Three-Rail layout. At an earlier stage of its development the system was described in these pages in July 1960, when it was basically "L"-shaped. Since that time more space has become available for the system and this has provided the opportunity for developments that take the fullest advantage of a baseboard size of 12 feet by 8 feet.

The space now available allows plenty of room for the railway itself, which in general follows the rectangular shape of the baseboard structure. In addition it also provides a central space, or well, in which the owner of the system can stand or sit while managing the controls that govern the movement of trains, and the operation of Points and Signals, on the four main sections of the railway.

The main running lines form, in effect, a double-track system on which continuous running is readily possible, but their arrangement is slightly different from that of the usual double track. The outer main track is raised above the level of the

By Layout Man

inner one for a considerable distance, and at a convenient point along the elevated section a branch is thrown off. This swings round to cross the inner main track and several sidings, and eventually doubles back to rejoin the outer main track, forming a return loop in the process.

The inclusion of this feature adds considerably to the operating possibilities. For instance, a train on the outer main track can cover part of its journey in a clockwise direction, and then be diverted over the return loop, so that on rejoining the outer main line it is travelling anti-clockwise. This reversal of direction takes place on the elevated section of track, and on regaining baseboard level the train can be passed to the inner main track by means of Points conveniently situated to form a crossover. There are, in fact, several sets of Points connecting the inner and outer main tracks in this way and, for a considerable length on the side of the layout opposite to the return loop and elevated track, loop lines running parallel to the main tracks provide alternative routes for trains in both directions. These running loops are very useful for the purpose of holding slower-moving traffic while fast trains overtake them on the main lines. Special care has been taken in the arrangement of the isolating sections to make these side-tracking and overtaking movements as easy as possible.

Within the main oval, at one end of the layout, is a series of parallel tracks forming a motive power depot for the steam-

At the head of the page Hornby-Dublo enthusiast C. H. Meyerhoff, of Buckie, Banffshire, is seen operating his revised Hornby-Dublo Three-Rail layout, details of which appear in this article.

type locomotives employed on the line. In view of the inclusion of the return loop previously mentioned, a turntable is not provided at this depot. It would, in fact, be difficult to find room for it because of the somewhat concentrated nature hereabouts of the track and lineside developments.

In a corresponding position at the opposite end of the layout is a depot devoted to diesel locomotives only. This can be reached from an inner continuous track serving a space that is more or less surrounded by the buildings of a miniature town. A goods yard with sidings and a depot also can be reached from this inner track, which traverses a considerable stretch of township in the course of its circuit.

From the control point of view the outer track, including its elevated return loop, forms one complete circuit and the inner main track another. The inner continuous line previously referred to constitutes a circuit of its own, while for convenience in shunting carriage sidings and goods yard are subject to a further separate control. This means that movements in any of these sidings can be carried out quite independently of traffic moving on the main running lines. Insulating Tabs are placed between the centre rail clips at convenient places where the circuits adjoin one another. Trains can be passed readily from one main circuit to the other by suitable adjustment of the respective control handles. In such circumstances, the receiving circuit must be clear and any train running on it will have to be diverted to a loop line or a siding, or held in any other section that can be switched out or isolated electrically for the time being.

A considerable amount of rolling stock, both passenger and goods, is in use on the layout and to run the trains there are examples of all types of Hornby-Dublo Three-Rail Locomotives. From the traffic point of view, an interesting train is the

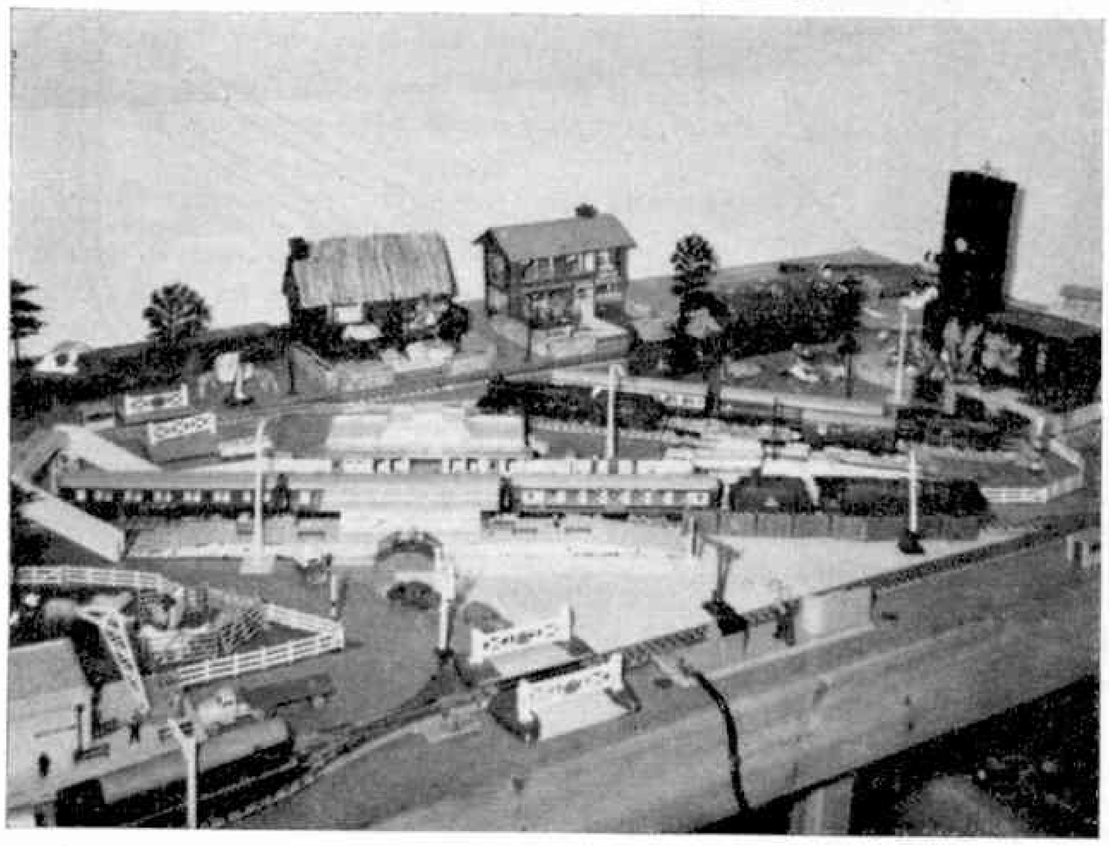
Another view of Mr. Meyerhoff's layout, looking towards the opposite end of the system from that shown on the previous page.

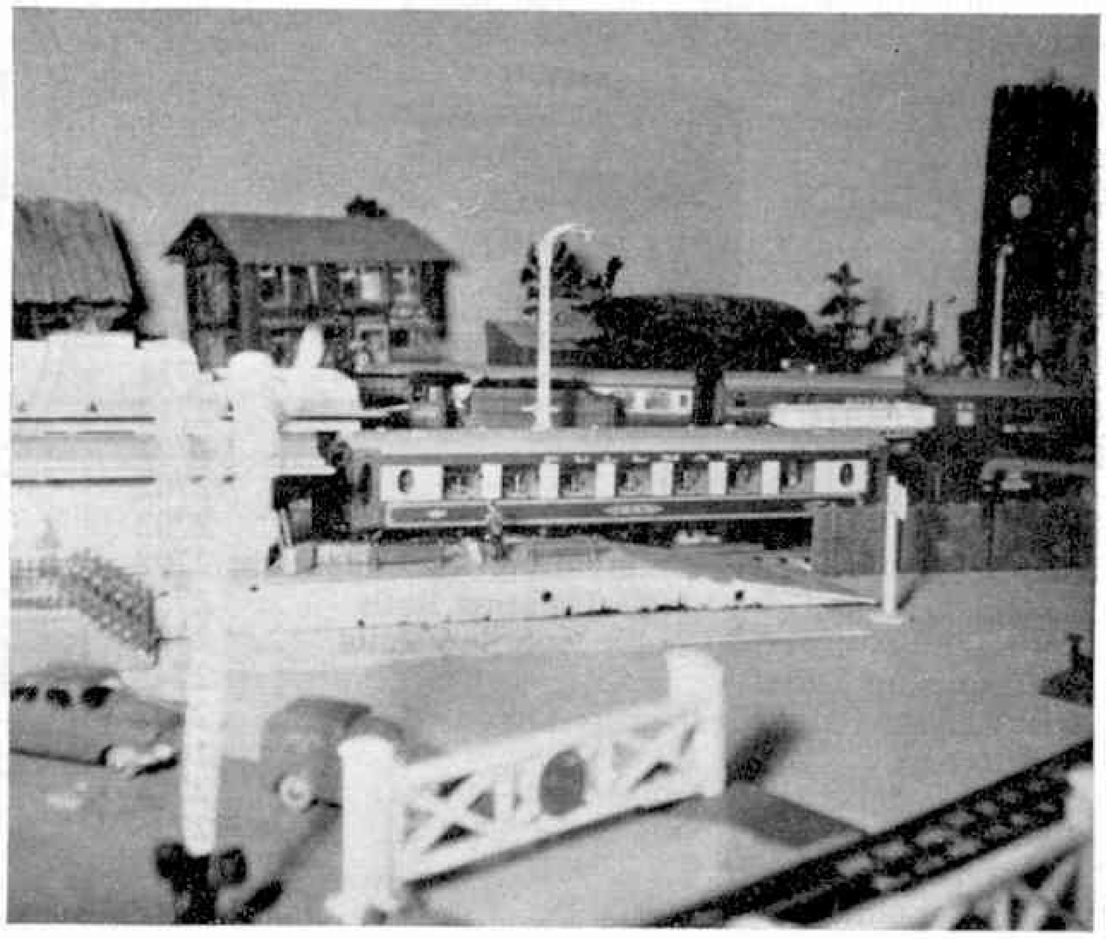
formation consisting entirely of Hornby-Dublo Pullman Cars, to haul which a Co–Co Diesel Locomotive is frequently employed by the owner of the layout. Another impressive train includes Sleeping Cars, while Restaurant Cars and a T.P.O. Mail Van also are in service. Set train formations are kept assembled from coaches of similar types and liveries, B.R. maroon, S.R. green, and W.R. brown and cream stock all being represented.

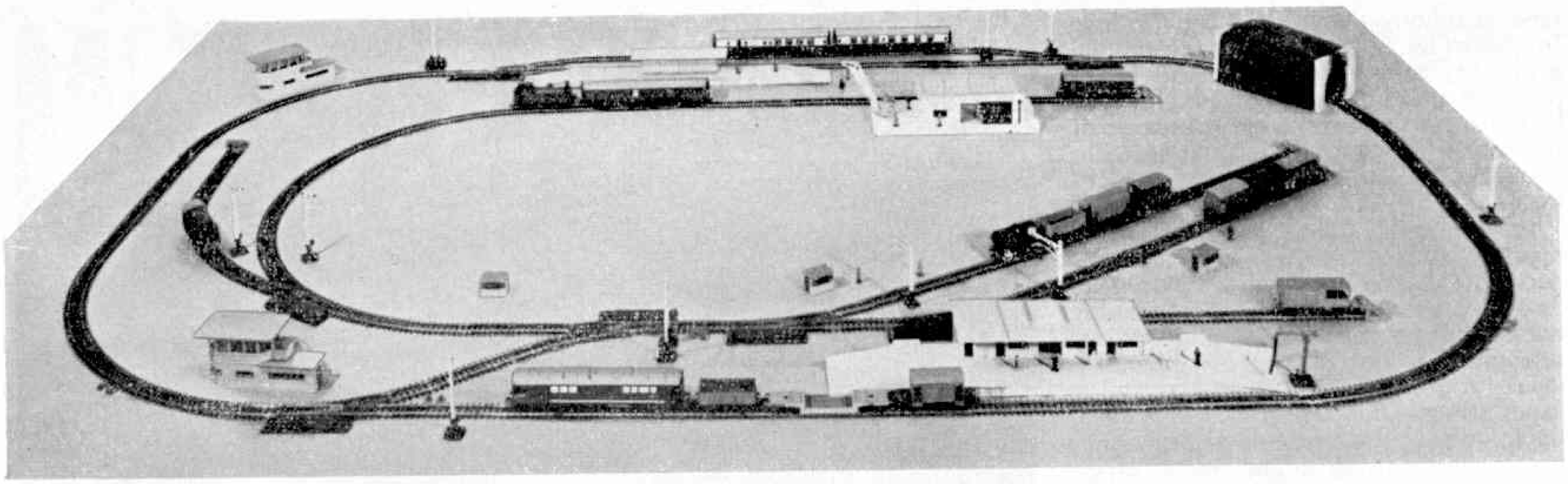
The pair of pictures below show another Hornby-Dublo layout, simpler in character than that I have just described, but with ample space for development, as the baseboard on which it is arranged measures 12 feet by 4 feet. This system belongs to *M.M.* reader S. Edgley, of Newmarket, who has devoted a considerable amount of attention to what I may call the landscaping of his system. In addition to one main and one less-important station there are lineside buildings in some variety, many of them made at home. The layout also includes a road system on which Dublo Dinky Toys and other items from the Dinky Toys range are prominent. The general contours of the countryside have been modelled and the general effect is completed by the use of background scenery.

The railway itself consists of an oval track with various branches. It has scope for development, and I hope I shall have further news of the system for you in due course.

(Below) A general view across the Hornby-Dublo layout of S. Edgley, Newmarket. (Right) A close-up of part of the same system showing the Level Crossing, with a station and other features beyond it.







A Layout For Shunting Operations

MONTHLY TWO-RAIL FEATURE

BY "LINESMAN"

THE track formation shown this month fits on a baseboard measuring 7 ft. 6 in. × 5 ft., and provides the facilities for carrying out a variety of interesting train operations. It will be seen that the oval track, for continuous travelling, has a set of Points which lead to a group of two sidings, and that these have their own Terminal Rail. They also are provided with a long extension to the left, which serves as a shunting spur as well as a useful extra siding.

A train traversing the track in a clockwise direction can be stopped clear of the points and backed through the crossover into the sidings, in either of which vehicles can then be detached by means of the Uncoupling Rails. An engine can move backwards and forwards, shunting the sidings without coming on to the main line, while the shunting spur itself has a short siding leading from it which can be used for holding a locomotive not in service. A Double Isolating Rail must be provided between the main line Points and those of the siding.

In addition to the sidings there is a loop on the upper main track in which a train can stand while another traverses the main line. A Junction Signal and Electrically-Operated Point, wired together, serve this loop at the left hand end. When the Points are set for the main line the right hand signal arm is raised to the "clear" position. The action of moving the Switch to set the Points for the loop will also cause the left hand arm of the Signal to rise to the clear position.

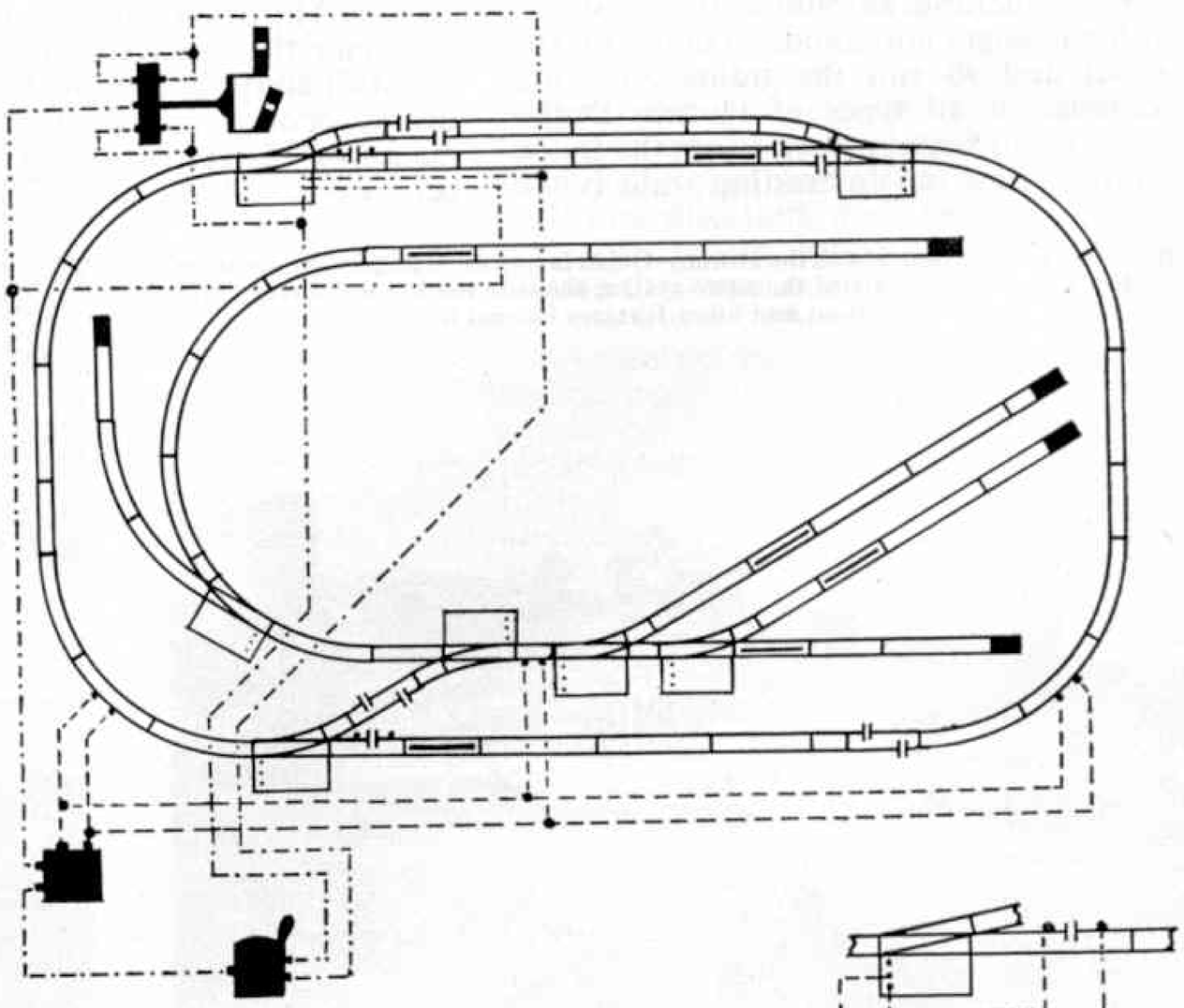
The power control unit employed for this layout must have, in addition to an output for running a train, another of sufficient capacity to work Electrically-Operated accessories.

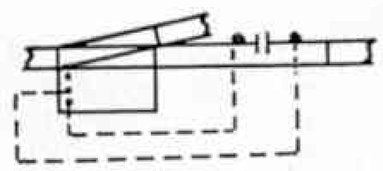
Two isolating sections have been provided on the main line so that a train may be held in one or other of them while a shunting movement is made in the sidings by another locomotive.

ITEMS REQUIRED

17	Curved Rails	2710
2	Curved Terminal Rails with Suppressor	2714
2	Curved Half Rails	2711
7	Curved Quarter Rails	2712
18	Straight Rails	2701
9	Straight Two-Third Rails	2702
3	Straight One-Third Rails	2703
1	Straight One-Third Terminal Rail with Suppressor	2708
2	Straight Two-Third Single Isolating Rails	2738
4	Straight Two-Third Double Isolating Rails	2739
6	Uncoupling Rails	2745
1	Left Hand Point Electrically-Operated	2732
1	Switch	1614
2	Right Hand Switch Points	2728
4	Left Hand Switch Points	2729
5	Buffer Stops	2450
1	Power Control Unit	

This month's layout is shown pictorially (above) and in diagram form, on the right.

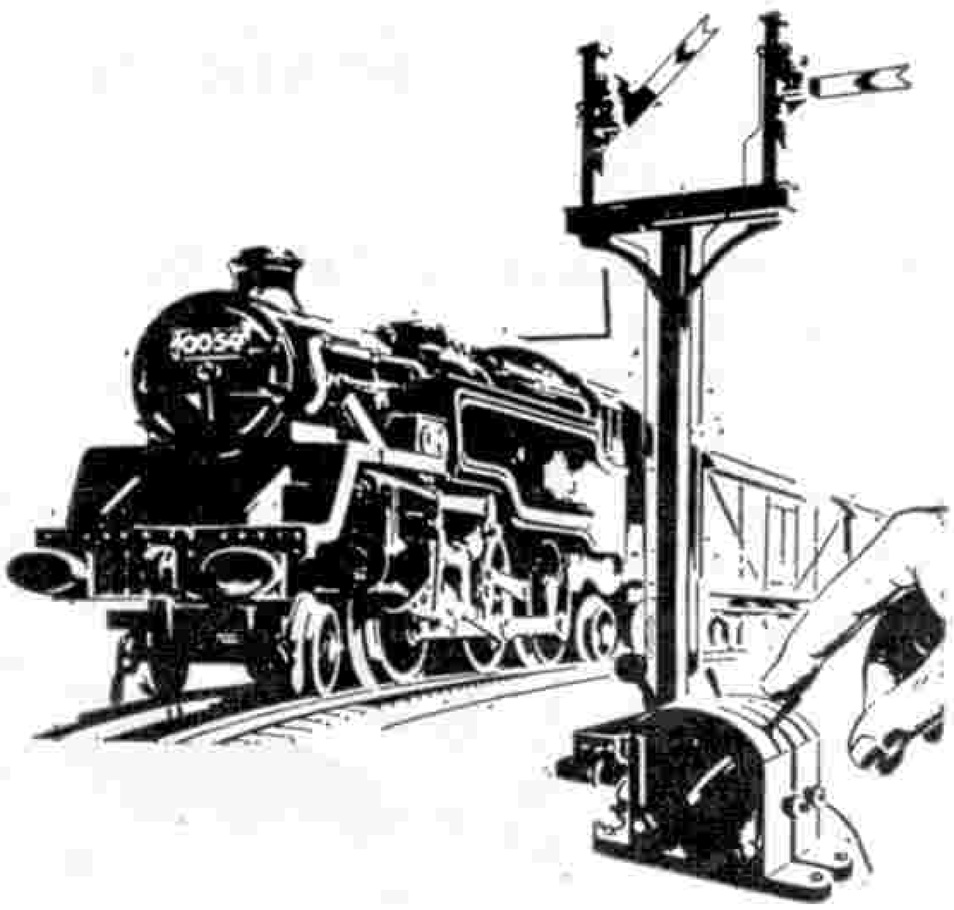




WIRING OF SINGLE ISOLATING RAIL

HORNBY REPAIR SERVICE

EXTENDED



THE Repair Service introduced by Meccano Limited at the beginning of this year to expedite repairs to Hornby-Dublo Locomotives and Tenders (2-rail and 3-rail), Hornby Gauge 0 Clockwork Trains and Clockwork and Electric Meccano Motors has been still further extended within the last few weeks. Counties newly covered by our Accredited Service Specialist scheme include Cornwall, Oxfordshire and Northumberland. The revised list of Dealers operating this service is given below. Repairs may, of course, still be sent to the Service Department of Meccano Limited at Hanson Road, Aintree, Liverpool, but it is hoped that the recently-established network of service specialists will enable customers to save time and postage. Firms taking part in the scheme display a distinctive Accredited Service Specialist sign and their premises are located as follows:

ANGUS
Dundee—Brian Sherriff, 93 Victoria Road.

BEDFORDSHIRE
Bedford—H. J. Banks, 23 St. Peter's Street.
Luton—Aeromodels, 59 Wellington Street.

BERKSHIRE
Reading—E.A.M.E.S. (Reading) Ltd., The Model Shop, 24 Tudor Road.
Reading Model Supplies, 1 Hosier Street, St. Mary's Butts.

CHESHIRE
Birkenhead—Birkenhead Model Supplies Ltd., 32 Grange Road West.
Moreton—Mortimer Ltd., 254–260 Hoylake Road.
Neston—J. Bailey, The Model Shop, Parkgate Road.
New Brighton—G. Longworth, 78–80 Rowson Street.

CORNWALL
Helston—Eddy & Son (Helston) Ltd., 21 Meneage Street.

DENBIGHSHIRE
Wrexham—Craftoys Ltd., 4 Centenary Buildings, King Street.

DEVONSHIRE
Barnstaple—E. Gale & Son Ltd., Joy Street.
Bideford—E. Gale & Son Ltd., 2–3 Mill Street.
Exeter—John Webber (Sports) Ltd., 50–51 High Street.
Plymouth—F. T. B. Lawson Ltd., New George Street.

CUMBERLAND
Carlisle—R. M. Hill & Sons, 36–40 Castle Street.

DURHAM
Durham—C. T. Applegarth, The Model Shop, 92 Claypath.

ESSEX
Chelmsford—Chelmsford Model Co., Baddow Road.
Colchester—West End Cycle Stores, 65 Crouch Street.
Ilford—Pages of Barkingside Ltd., 19 Broadway Market, Fencepiece Road, Barkingside.

GLAMORGAN
Cardiff—James Lendon, 194 Fidlas Road, Llanishen, The Model Shop, 9 Mill Lane.
Neath—Pearms Ltd., 16 Alfred Street.

GLOUCESTERSHIRE
Bristol—The White Tree Electrical and Toy Bazaar, 28 North View, Westbury Park.
Cheltenham—I. Newman (Cheltenham) Ltd., 127–9 Bath Road.
Cirencester—S. E. Trinder, The Model Hangar, 71 Cricklade Street.
Cloucester—O. & N. Ash, 106 Westgate Street.

HAMPSHIRE
Bournemouth—The Sports Shop, 14 Seymoor Road, Westbourne.
Portsmouth—Robin Thwaites Ltd., The Hobby Shop, 28 Arundel Street.
Southampton—H. I. Dowding & Son Ltd., 265-267 Shirley Road.
Woodkraft Supplies Ltd., 38 Northam Road.

HERTFORDSHIRE
Royston—H. C. Green, 25 High Street.
St. Albans—Bold and Burrows Ltd., 12–18 Verulam Road.
Watford—H. G. Cramer Ltd., 127a–127b High Street.

KENT
Beckenham—Furley & Baker, 69 High Street.
Bexleyheath—W. J. & H. G. Jennings Ltd., Department Store, Broadway.
Canterbury—Barretts of Canterbury Ltd., 2 St. George's Street.
Gillingham—J. R. Baker (Gillingham) Ltd., 14 Canterbury Street.

LANARKSHIRE
Glasgow—Caledonia Model Company, 478 Argyle Street.
Clyde Model Dockyard Ltd., 22–3 Argyle Arcade.
Glassfords, 89 Cambridge Street, C.3.

LANCASHIRE
Ashton-under-Lyne—Ashton Model Supplies, 201 Old Street.
Darwen—Arnold Leaver, 65–67 Duckworth Street.
Liverpool—Lucas's (Hobbies) Ltd., 7 Tarleton Street.
Rushworth, The Model Railway Shop, 137a Kensington.
Manchester—Bassett-Lowke Ltd., 28 Corporation Street.
The Sports Depot (Manchester) Ltd., 4–10 Princess Road, Moss Side.
Wigan—J. J. Bradburn, 76 Market Street.

LEICESTERSHIRE
Leicester—North's Toy and Model Stores, 5 Melton Road.
Loughborough—Clemersons Ltd., 43 Market Place.

LINCOLNSHIRE
Cleethorpes—H. Loftis, 196 Grimsby Road.
Lincoln—S. A. Nobbs & Son Ltd., 2 Norman Street and 16 Sincil Street.

LONDON
London—Allan Brett Cannon Ltd., 32 Railway Approach, London Bridge Station, S.E.1.
H. A. Blunt & Sons Ltd., 133 The Broadway, Mill Hill, N.W.7.
Hamblings (Models) Ltd., 10 Cecil Court, Charing Cross Road, W.C.2.
Model and Tool Supplies, 604 Kingston Road, Raynes Park, S.W.20.
Models (City) Ltd., 2 The Arcade, Liverpool Street Station, E.C.2.
Palace Model Shop, 13 Central Hill, Upper Norwood, S.E.19.
W. & H. (Models) Ltd., 23 Paddington Street, Baker Street, W.1.

MIDDLESEX
Edgware—Cresta, 1 Cinema Parade, Manor Park Crescent.

MIDLOTHIAN
Edinburgh—Harburn's Hobbies Ltd., 116 and 122–124 Leith Walk.
Messrs. Donray, 302 Morningside Road.

NORTHAMPTONSHIRE
Peterborough—Oliver Carley, 35 Broadway.
Wellingborough—Littlefolk, 24 Market Street.

NORTHUMBERLAND
Whitley Bay—The Whitley Model Shop, 67 Park View.

NOTTINGHAMSHIRE
Nottingham—Beecroft & Sons Ltd., 16 Pelham Street.
Gee Dee Ltd., Friar Lane and Goose Gate.

OXFORDSHIRE
Oxford—A. S. Rising, 243 Banbury Road.

PERTHSHIRE
Perth—Bob Croll, 75 High Street.

SOMERSET
Bath—Pram and Toy Shop Ltd., 22–23 Southgate Street.
Cyril Howe's of Bath Ltd., 15 Abbey Churchyard.
Taunton—Westlakes (Cycles) Ltd., Station Road.
Yeovil—H. J. Perris (Retail) Ltd., 9–11 Princes Street.

STAFFORDSHIRE
Burton-on-Trent—J. W. Belfield, 2–4 and 12–14 West Street and Market Street, Swadlincote.
Cradley Heath—Dunns (Cradley Heath and Dudley) Ltd., 65 Lower High Street.
Stafford—John Bagnall, South Walls Road.
Stoke-on-Trent—John Pepper (Hanley) Ltd., 61–65 Piccadilly.
Walsall—S. H. Granger, Caldmore Models, 108 Caldmore Road.
Wolverhampton—A. J. Chamberlain, 39 Darlington Street.

SURREY
Coulsdon—R. Wills (Scientific Hobbies) Ltd., 92 Brighton Road.
Croydon—Priors, 107 High Street.
Guildford—Guildford Dolls Hospital Ltd., 13 Swan Lane.

SUSSEX
Bexhill-on-Sea—Arber's Model and Toy Shop, 46 Weston Road.
Crowborough—Regent House, High Street.
St. Leonards-on-Sea—A. Hammonds, 5/6 Marine Court.

WARWICKSHIRE
Birmingham—Bearwood Model Supplies, 53 Parade.
Horton's (Models & Toys) Ltd., 32 Stephenson St., 2.
The Perrys, 769 Alum Rock Road, Ward End.
J. Williams, 51 Comberton Road, Sheldon.
Sutton Coldfield—W. Gill & Son, The Parade.

YORKSHIRE
Bradford—Bradford Model Railway Centre Ltd., 202 Keighley Road, Frizinghall.
Leeds—King Charles Sports Centre, 18 and 20 King Charles Street.
Sheffield—Fred Shaw, 42 Church Street.
The Redgate Co. (Sheffield) Ltd., Moorhead.

CHANNEL ISLES
Jersey—George D. Laurens, 3/5/7 Queen Street.

EIRE
Dublin—Southern Model Railway Co., Lower Leeson Street.

NORTHERN IRELAND
Belfast—The Model Shop, 36 Wellington Place.
Thornton & Co. Ltd., 40/42 Donegal Place.

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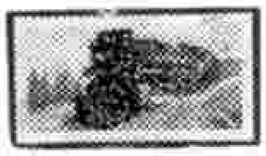

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FOR OTHER STAMP ADVERTISEMENTS SEE ALSO PAGE 215

U.N. Stamps

By F. E. Metcalfe

THERE are many colourful and popular postage stamps being issued from time to time which do not belong to any one country or even to a country at all. These are the stamps of the United Nations organisation. Their primary reason for existence, of course, is to raise funds by sale to collectors, to whom they give a great deal of pleasure by reason of their attractiveness. I said that these U.N. postal issues are popular, but I am afraid that most of this popularity is in the U.S.A. where U.N.O. has its headquarters and where the stamps can be used postally, if the mail is delivered to the Post Office at United Nations' Headquarters.

Recently, the sale of U.N. new issues in the British Commonwealth was entrusted to the Crown Agents, in London. Through the publicity that institution can give to the stamps, plus a first class service which greatly encourages dealers to sell the stamps they have, U.N. stamp sales here in Great Britain should improve. In fact,

there are already signs of a growing interest, but I must make a point before going any further. The U.N. offices in London, which hitherto handled the stamps, did a very fine service job, so they cannot be blamed for the present relative lack of interest; it was just a case of so many collectors here finding it as much as they could to collect our own KGVI–QEII issues which, of course, are always Britain's first choice.

However, the U.N. stamps are a colourful lot, and up to the present, in addition to their popularity with U.S. collectors, they have also been popular with the speculators. It is not the fault of U.N. authorities, of course. An example of this speculation was the miniature sheet issued last year. Now these small sheets have considerable popularity, and a million or so of the one in question were issued, but there was quite a row that this was not enough, and prices were pushed up well above face value. Yet—and this is the point I want to make—I do not think there can be anything like half a million collectors of such items. Where are all the rest of the sheets? Your guess is as good as mine, but one thing is certain, they will come out one day to upset the market, and that is the annoying part of most of these stamp speculations, for they generally result in a loss, not a profit, to the speculators—and I know what I am talking about.

Anyhow, let's forget all that, apart from remembering that we cannot come to any harm if we restrict ourselves to a collection of single copies. And generally the designs are so attractive that you can make a wonderful show without spending a fortune. Equally important is the fact that the various special issues are devoted to important world events. This being the case, if you form a U.N. collection and take an intelligent interest in what you are doing (not making it just a chore of sticking stamps in a book willy-nilly) then such an effort can be of educational value. I hope, by the way, that the last comment will not deter you!

The first definitive issue of U.N. appeared in October–November 1951, followed by an Air Mail set in December of that year. Fortunately for collectors starting up this collection now, most of these stamps are still current and, therefore, can be bought at current rates. That soon disposes of the definitives, and then the fun begins with the special issues, and here we get a lot of bright, well-designed stamps which, as already stated, commemorate all kinds of important events. There are stamps for the "Protection of Refugees", "Technical Assistance for Underdeveloped Areas", "United Nations' Day", etc. Our own British firm of De La Rue has carried out a lot of the printing of U.N. stamps, and a fine job they have always done. As for designers, some of the world's best have been called into service, and the results generally have been really first class, as could be expected under the circumstances.

There was a new commemorative issue last September, and several other special issues are still obtainable at current rates, so if you feel like taking up U.N. stamps, or even just devoting a page in your album to them, now is the time to get in

touch with your dealer. Don't forget that he, like you, may be taking the stamps up for the first time, and he will be delighted to see that you also are interested. Don't overlook used, which are generally much scarcer than mint and, of course, there are the miniature sheets, but do not pay any fancy prices for the latter.

Storing Your Collection

PACKING up. This is a point I mention each year, as I know, from the junior collections I see from time to time, how necessary it is to reiterate it. Most stamp collectors carry on all the year round, but some of the younger members of our fraternity, seeing the sun peeping out (alas, it is doing very little peeping as I write these lines) dash out to greet it. Up on to the top shelf, for the next month or two, goes the stamp collection which for months has yielded so much pleasure, when pleasure was greatly needed. Now, up it goes, dumped any old how, and when, with the return of the dark evenings, it is brought down again to provide more fun —as it certainly will be—how very, very often the mint stamps at least are found to have suffered badly. Bang goes any value they may have had.

So, if you are going to store your collection during the summer months, do please see that the album is covered and, above all, stood upright, not left lying flat. It is amazing what pressure there is on the stamps in a well-filled album if it is left lying down, undisturbed, for any lengthy period. The mint stamps are pressed on to the album pages, and with the slighest moisture they become stuck down, and thus almost useless. I see album after album (especially late in the year, when they have been brought out again after being in store, as it were) where this has happened, so *do* take notice of what I have just written.

TRISTAN DA CUNHA

Those unfortunate people who had to evacuate that far-away island are still in the general news. And so are their stamps—among collectors—and to such an extent that they have more than doubled in price since the catastrophe. Of course, the stamps which have gone up most in value are the four which were overprinted in St. Helena (where the

stamps were also kept, to supply those who wanted souvenirs, etc. of Tristan which they could not get from the island itself). These four values were overprinted with surcharges, the latter to be applied as relief to refugees. However, by the time 434 sets had been sold the Colonial Office had stepped in, and the unsold balance was destroyed. (Without going into details, it can be said that the withdrawal was justified.) As a result, the refugees got virtually nothing from the sale of the stamps, but it is interesting to know what prices were obtained for some of the sets. The first used set was put up in a Bond Street auction and sold for £210, to be followed by the sale of a mint set, which brought £150. I heard of one young collector who had a set sent to him from South Africa, and he got a good price, too.

VARIETIES

Just take a look at the illustration here of the Great Britain "Post Office Savings Bank" stamp, and see if you notice anything? With the exception of shading on the portrait the rest of the design is plain black and white. That is because, in the stamp illustrated, the second colour (light brown) is missing, and if you come across a similar copy, mint or used—and there may be odd copies knocking about—then mark yourself up about £75; I repeat, there may be copies anywhere.

The fact is that lately all kinds of varieties have turned up, especially among the current stamps of New Zealand. Several of the lower values of this very handsome set are printed in various colours. I have no room to go into details

as to how it comes about, but during the printing some of the colours miss out and, in checking, the omission is not noticed. Thus, the lucky buyers at the post office—there have been many—find themselves a good few pounds the richer. Non-collectors look at such items as faulty stamps, which they are, of course, and cannot understand why collectors prize them so much that they are willing to pay such big prices for them. But that's how we collectors are, and just to make your mouth really water, so to speak, I will mention that a used copy of the Great Britain 6d. "Parliamentary Conference" with the gold portion missing was put up in auction recently and it sold for £525. Now please don't say we collectors have more money than, shall I say, judgment!

EDUCATION

As everybody knows, Canada recently followed the lead of Great Britain by issuing stamps—from 1c. to 5c.—having the phosphor lines running down the front (at each side of all values, except the 4c., which has only one). Over there these stamps are referred to as "tagged" (a rather off-the-track designation for phosphor). Now already I am being asked how one can tell that the lines are there, as they are quite colourless. Well, the short answer is that on the stamps themselves it is almost impossible to do so, for the reason I have just given, but stamps with a bit of selvedge attached can generally be detected, as on the plain white paper of the edging a faint line does show up. There is one more crumb of comfort. I have noticed that on G.B. "phosphor" stamps which have been kept for some time a faint line is developing, due no doubt to the action of air on the chemical concoction which makes up the lines.

It is the "Education" stamp which appeared on February 28 last which I really want to mention, however. Canada is going all out to encourage learning, and this stamp has been issued to advance the good work. Just examine the illustration of it here. Note those nineteen symbols in the background. They have not been put there willy-nilly to fill up an empty space. Oh dear no, every one has a purpose. For instance, take the first in the top left corner—the Greek Temple, denoting respect for achievement of past history. The next, the gavel and coat of arms, signifying law and government. The gear wheels symbolise engineering and industry . . . and so on. A fascinating stamp. Just try to work out the significance of the other symbols.

THE TIP OF THE MONTH

It would be quite easy to mention this, that and the other stamp as likely to go up in price, for that is a habit which lots of stamps have when they become obsolete. I am always very amused at the tipsters, who proclaim that a stamp they have mentioned, while still current, has gone up in price, although all the time the rise is only due to the fact that it has

(*Continued in column 3, next page*)

By E. W. Argyle

Locomotives On Stamps

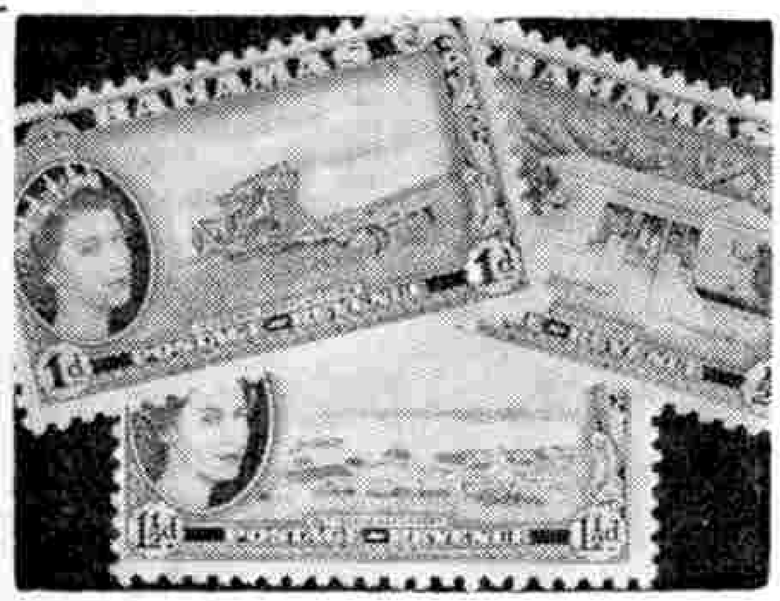
THE steam locomotive on the Austrian stamp shows the last of the towed-tender express engines, a class ID2, of the Austrian State Railways, built in thirteen groups between 1928 and 1936. The engine depicted is from the last group with the serial numbers 214.08 to 214.13. The locomotive 214.10 is to be preserved in the Vienna Railway Museum.

To commemorate the 100th anniversary of the first railroad in Brazil, a 40c. stamp was issued showing English built "Baronesa" ("Baroness"), now preserved in working condition at the workshops of the Central Brazil Railroad in Rio de Janeiro. This first Brazilian engine is also depicted on another stamp of the country issued in 1958. The "Baronesa" is taken out and given a run in every important Brazilian railway event, and took part in the Pan–American Railroad Congress in 1960, when she made a trip with her two 4-wheeled cars that are still preserved. The actual opening of the first line, a distance of 14½ kilometres, took place on April 30, 1854.

DO YOU KNOW that the first land sighted by Columbus on his journey west in 1492 was the **BAHAMAS?**

That one of these islands, **GRAND TURK,** was the spot chosen for Col. Glenn to rest after his journey in orbit.

And that we will send the three Bahamas stamps illustrated to YOU, **ABSOLUTELY FREE.**



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A. Davies (M/5), "Thornbank", Wroxall I.o.W.

FOR OTHER STAMP ADVERTISEMENTS SEE ALSO PAGE 212

Stamp Gossip—(*Cont. from previous page*)

become obsolete, with the inevitable change in value.

However, this time I will refer to a set of stamps issued recently for Tanganyika, to herald independence. I have noticed that few used copies are coming through, and I suggest that you stick to any which come your way, particularly of the high values, if they are in fine used condition. I have a feeling that this set will not have a long life, and even if this new country leaves the Commonwealth, as we have been told it might, the current set will always be needed by "Q.E." collectors—which means a lot will want them.

A HANDBOOK OF GLASGOW TRAMWAYS

By D. L. Thomson,
Scottish Tramway Museum Society

Outside the London area the City of Glasgow had the largest tramway system in Great Britain—one renowned for its cheap and frequent services. Over the last few years, however, the once vast system has been gradually superseded by trolley-bus and motor bus services, and only a remnant remains today. Although not intended to be a complete history of the tramways this well-illustrated handbook is a useful guide. It contains a great deal of information on the system, its track layouts, rolling stock and services. As well as its tramways, Glasgow has its famous circular Underground Railway, and this is also dealt with in some detail.

Copies of the booklet can be obtained from Ian L. Cormack, M.A., Hon. Secretary, Scottish Tramway Museum Society of 46 Wellshott Drive, Cambuslang, Glasgow, price 8/–, post free.

TRAMWAY SOUNDS ON RECORDS

Tramway enthusiasts will be interested in two recently introduced records. One, dealing with the recently-closed Grimsby and Immingham system, quickly sold out—which speaks for itself. The other record is an extended play by Davies Transcription Service of Sheffield (No. EGA 8005) *Sounds of Sheffield Tramways* and is first-class. The sounds we hear include a regulator detailing his crews for their duties, travelling on the platform of standard class car 97, bouncing along reserved track in a Jubilee-class car, and the last night of operation on the Ecclesall route. The disc can be purchased from D.T.S., price 12/8½ (post free), at 20 Endcliffe Rise Road, Sheffield 11.—**D.K.**

Creating Electricity from Natural Steam—

(*Continued from page 181*)

respect and usually get it from those who value their own safety. But one bore vented its wrath recently in an unexpected manner. Without warning, it blew the top off a hill, injuring one man and endangering the lives of several others working nearby.

It would seem that having lain dormant for untold aeons, this giant force—once having been roused from its age-long sleep—is impatient of the irksome restraint now being put upon it. Any carelessness on the part of those dealing with it might well have very disastrous consequences. Like electricity, geothermal steam is proving a good servant, but it could be a terrifyingly destructive force if it became master.

Air News—(*Continued from page 187*)

use the seats. In the United States, for example, 38 different versions of the Martin-Baker seat are fitted in 21 types of aircraft. In Britain there are 67 different seats in 23 types of aircraft. Elsewhere, 23 versions are fitted in 21 types.

All of these seats are fired out of the aircraft in an emergency by a cartridge; but the latest type, now under development, uses a rocket to fling the pilot clear. The rocket is able to eject a pilot safely to a height of 300 feet from a hovering VTOL aeroplane like the Hawker P.1127 strike fighter, so giving the pilot's main parachute plenty of time in which to open fully and lower him to the ground.

A Tank Engine Giant of the Past—

(*Continued from page 185*)

to be the Transport Museum, where it will form an interesting contrast to many more aristocratic steam units. The descriptive catalogue of engine exhibits will doubtless remind visitors that *Cecil Raikes*, when built, represented the most powerful design of tank locomotive in the country.

It is of additional interest to know that the Mersey survivor was named after one of the promoters of that railway, the Rt. Hon. Henry Cecil Raikes, M.P. He was Postmaster-General from 1886 until the time of his death in 1891, and a stone inset on the G.P.O. headquarters building in St. Martins-le-Grand, London, records that he laid the stone to commemorate "the Jubilee Year of Uniform Inland Penny Postage" on November 20, 1890.

During his term of office as Postmaster-General the Minister was engaged in reorganising the parcel post, and, in the words of the *Post Office Magazine*, "restoring to the Department large profits which the railways of the period had diverted to themselves." Had the railway companies in question realised that the little Mersey Railway owned an engine bearing the name of such a political enemy, one imagines that they would have taken a dim view of it.

In addition to having a locomotive named after him, and having his name inscribed on the stone mentioned above, Cecil Raikes is also commemorated by a third, and very different, memorial. This is a stained glass window, by the great Victorian artist Burne-Jones, in the parish church at Mold, North Wales, where he was a devout worshipper.

Photographs of the engine *Cecil Raikes* in either Mersey Railway or colliery service liveries are very rare, and the fine view illustrating these notes depicts the original pattern of chimney. Other notable features are the unusual lifting pattern of smokebox-door, and the prominent pipes of the long-disused condensing apparatus.

"He's mad on Meccano".

Up Beyond the Circle—

(*Continued from page 195*)

which reel is on each machine and if there is a reel in the rack which has not been rewound.

And so the day goes on, reel after reel being replaced, film after film being shown for the public's entertainment, until the stand-by bell rings on the final reel of the last performance of the day.

The staff stand at the machines or at the switchboard and as the film ends, the curtains close, the house-lights rise and the National Anthem is played. When the patrons have left, the attendants make a thorough inspection of each row, making sure there is no fire danger. Meanwhile, in the projection room the last reel to be shown is rewound and stored away. Then, just in case anyone in the projection box has his nose, or fingers, too close to the edge of the ports, the chief yells, "Fingers!"—or some similar warning—before sealing off the box from the theatre for the night.

Meccano—and Me—

(*Continued from page 204*)

but to me, at all events, it was a poor substitute for activities involving Hornby Trains and Meccano.

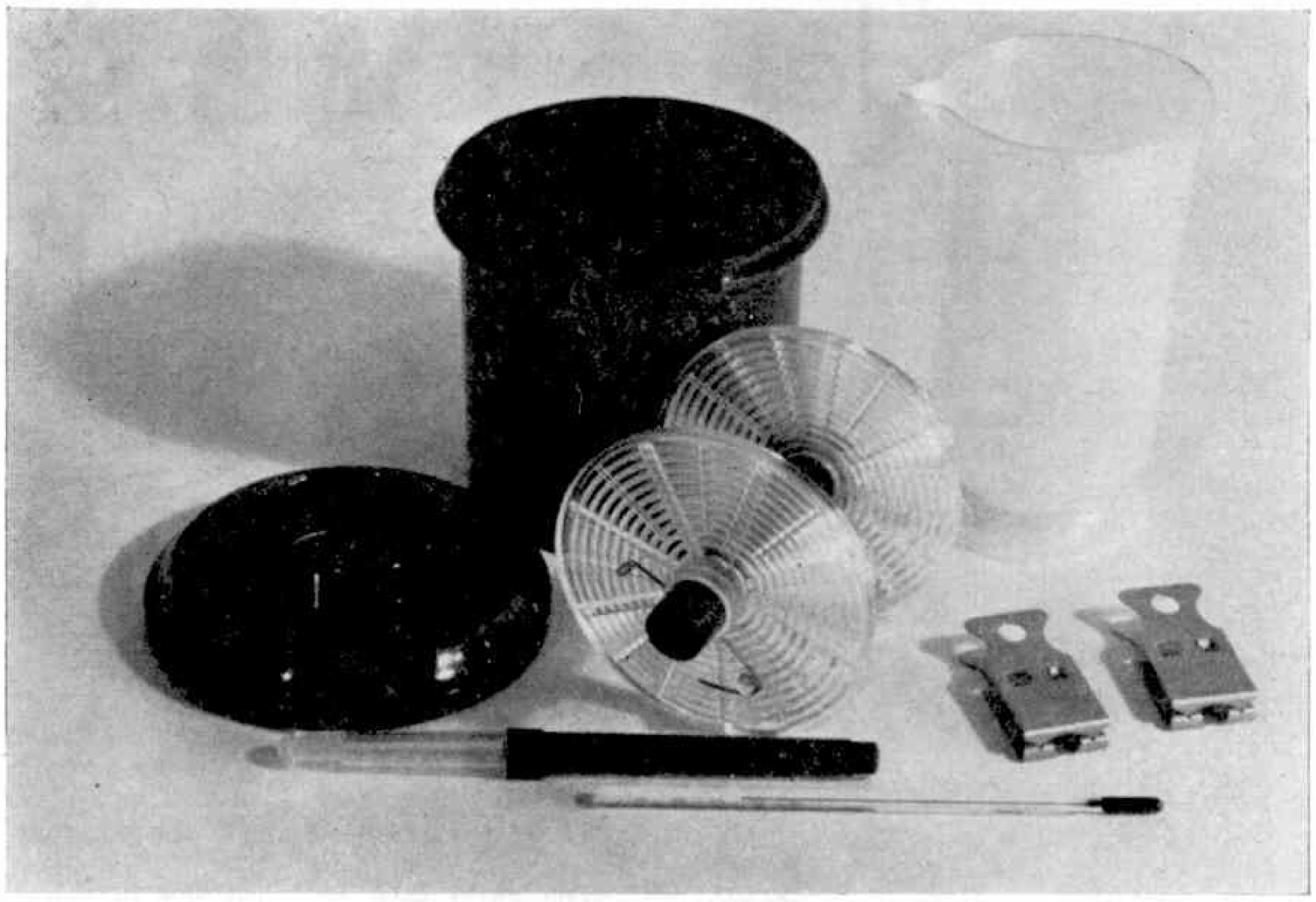
In 1952 I was transferred to East London and soon model railway supplies began to come through again. In 1955 I was back in the model railway game with some Hornby vehicles adapted to run on two-rail track. Late in 1960 the first Hornby-Dublo Two-Rail items arrived in South Africa and they were very welcome indeed. Since I do not have a large house, and space is rather limited, my railway is on the small side, 42 inches by 78 inches, mounted on trestles. I have always maintained, however, that the size of a layout does not govern the amount of enjoyment you can get out of it.

In conclusion, let me add that in my view the *Meccano Magazine* is the finest model publication on the market. Now, at 47 years of age, I find it just as interesting as when I read it for the first time almost 33 years ago. May the future generation enjoy Hornby and Meccano products as much as I have done and hope to do for a long time to come.

Of General Interest—

(*Continued from page 193*)

penalty was often severe. For serious crimes it meant banishment from England. The wrongdoer was branded on the thumb, dressed in a white garment, and told to take ship from the nearest seaport. Once the sanctuary knocker had been used and the fugitive had entered the building, he was spared further pursuit, however, and even nobles sometimes sought such sanctuary rather than face the angry mob pursuing them. The Durham knocker is one of the very few objects of its type remaining in Britain today. It is not to be confused with ordinary church door knockers which are usually only closing rings.



SPECIALLY FOR PHOTOGRAPHERS

Developing Films

DEVELOPING your own films is just as easy as making contact prints. There are, however, three vitally important points to watch—*cleanliness*, *time* and *temperature*.

Equipment for developing films is simple and quite inexpensive. Films can, of course, be developed in the dishes you use for contact printing. Modern films and developers have, however, made dish development of films out of date and inefficient. Your first and main requirement, therefore, is a developing tank. Many good and inexpensive tanks are on the market and a typical one is shown in our illustration, together with a few other items you need to start your own processing. These include a measure for making up your solutions, a thermometer, clips (or spring clothes pegs) for hanging up your films to dry, and a clock or watch for timing.

Because they are so sensitive to light most films must be developed in total darkness. Developing tanks are really small light-proof boxes containing a spool on to which the film is loaded to form a spiral coil. Provision is made so that solutions can be poured into and out of the tank without opening it. In the illustration the tank is shown with its lid off and the spool and stirring rod alongside it.

Naturally, your film must be loaded on to the spool in the dark, but, after you have loaded and closed the tank everything else can be done in ordinary room light. Even if you do not have a darkroom you can still load your tank, after dark, in a really dark corner, in an under-stairs cupboard, or even under the bedclothes in a dark bedroom.

Our picture shows the basic equipment which you need for developing your own films—developing tank (shown with lid removed and with film spool and stirring rod beside it), measure, thermometer and film clips.

By H. G. FORSYTHE

Developing a film is very similar to developing contact paper. You need a developer, a rinse and a fixer. A large number of excellent ready-mixed film developers are available. For consistent results, choose one and stick to it if it suits you. Your local photographic dealer or chemist will be pleased to help you make your first choice.

Water makes a suitable rinse after development and the fixer should be an acid hypo mixture. Here again, ready-mixed acid fixers are freely available.

Dust and dirt of any kind are a photographer's worst enemies. If you want good results, always keep your developing equipment scrupulously clean. Always wash it most carefully after use and keep it in a clean box.

Next month: Step-by-step development of your first film.

CALLING ALL BUS SPOTTERS

Contributed by David Kaye

THE light evenings are with us again, making a day's excursion really worthwhile, and so this month I want to suggest two places of special transport interest which are well worth visiting.

If you are in London for the day, do not fail to visit the Museum of British Transport in Triangle Place, S.W.4. Alight at Clapham Common tube station, or travel by London Transport routes 35, 37, 45, 88, 118, 137, 155, 181 or 189. In addition, Green Line routes 711, 712 and 713 pass nearby. The museum holds the nucleus of what will one day be an outstanding display of road, rail and canal relics. Although you can visit the display case section at any time from 10 a.m. until 5.30 p.m. on weekdays, guided parties are taken round the actual vehicles and rolling stock at 10.30 a.m., 1.30 p.m. and 3.30 p.m. daily. As well as L.G.O.C. and L.P.T.B. buses and coaches of famous classes of the past, such as the B, K, S, NS, ST, LT, STL, T, TF and Q, there is the first trolleybus in the Metropolis alongside Nos. 260, 1253 and 1768 which have only recently completed their working life. Look out for GW 713—an obsolete breed, the Gilford—now being restored to a glorious blue livery, and Eastern Counties A001, one of the first Leyland "Titans" with its open staircase. Much work is being done by B.T.C. employees and enthusiasts on saving these unique vehicles from the ravages of time. Don't miss the dainty Tenderden station bus which, at the beginning of the century, carried six passengers in a tiny saloon between the Kent and East Sussex Light Railway line and the small country town after which it is named.

There are some fascinating lithographs of Hancock's steam bus, which plied between Paddington and the Bank in 1832, and vivid paintings by Pollard of knife board double-deckers of 1852, together with buttons, titles and crests of motormen, conductors and inspectors. There is even the actual tender for building eight buses, for service between Bishopsgate and Cannon Street Station, in 1876 at a cost of £85 each.

* * * *

My other suggested trip is to Eastbourne where, at the eastern end of the sea-front, is the Modern Electric Tramway, a 15-inch gauge system which has a mile of track stretching out over the Crumbles. It operates from Easter until the close of the season. (*Continued on next page*)

Calling All Bus Spotters—

(*Continued from previous page*)

It was in 1954 that Mr. C. W. Lane began to move his scale model trams from Rhyl to Eastbourne. However, it was soon obvious that the two miniatures of the Blackpool "boat" type of car (Nos. 225 and 226), together with that of the Blackpool "balloon" type of enclosed double-decker (No. 238) were far too small to accommodate the passengers attracted by them each summer—both children and adults. And so Cars Nos. 6 and 7, open-top double-deck cars with seats for 40, were built. The lower deck of No. 6 had toast-rack seats, while car No. 7 had a similar arrangement but with the first two benches at either end enclosed as a saloon. In the middle of February this year I watched car No. 6 being converted to this style, too.

Last year, an enlarged version of 225/6 (numbered 4) was constructed with an overall length of 28 feet and was fitted with 20 seats from a former Glasgow tram. This proved so successful that for the 1962 season this will become an illuminated car. It is also planned to make car No. 3 (a smaller version of cars Nos. 6 and 7) suitable for carrying fairy lights for evening operation in August. It is hoped that Eastbourne Corporation will give permission for the line to be extended in two stages—that is, first for an additional 320 yards to Wallis Avenue, and then out as far as Langney Point. If this is granted, additional stock will be built, and some controllers from the former Grimsby and Immingham system have been acquired for future needs. To reach the terminus of the Modern Electric Tramway you travel by Eastbourne Corporation's new cream-liveried A.E.C. "Regent" Vs on route 6 as far as Prince's Park.

Traction Engine Rally At Andover

This is the month when the Andover and District Model Engineering Society hold their annual Traction Engine Rally, and as before it will take place at Finkley Manor Farm, near Andover, Hants; the date, Saturday May 12. The gates will be open at 12 noon, and the programme will begin at 2 p.m. Admission: Adults 2/– (including programme); Children 6d. Car Park: Cars 2/–; Motor Cycles 1/–.

There will be a fine turnout of steam traction engines and the usual full programme of events for them. In addition, there will be a model engineering exhibition, 3½ in. and 5 in. gauge miniature railways, and, as last year, a parade of veteran and vintage cars.

The Rally Secretary, Mr. G. Howell, of 5 The Crescent, Andover, will be pleased to give further particulars to readers who hope to be able to visit the rally and who will write to him for them.

Fireside Fun

A man had his hands severely burned in an automobile crash.

As he lay in the emergency ward, watching the nurse dress his limbs, he asked the doctor, "When the bandages are removed, will I be able to play the piano?"

The doctor nodded, and said, "I think so".

"That's funny, Doctor," he replied, "I never could play before."

"All the men struck at once!"

Early in a fight one of the boxers was knocked to the canvas. He did not seem to be hurt, but rose just too late to beat the count.

"What was the matter?" demanded his manager later. "You weren't hit hard. Why didn't you get up faster?"

"No, I wasn't hurt," said the boxer, "but I was so mad about being knocked down by that chap that I decided I'd better count up to 10 before I did anything."

A salesman rang up a prospective customer and the call was answered by a small boy.

"Are your parents home?" the salesman asked.

The child said no, and the salesman asked if there was anyone else he could speak to.

"My sister," the youngster replied.

"Let me speak to her," the salesman said.

There was a long period of silence and then the little boy returned to the 'phone.

"I'm sorry, but I can't lift her out of the pram."

* * * *

"It says here in the paper," observed the elderly gentleman, "that a man is run over in New York every half hour."

"Oh, dear!" murmured the old lady, "Poor fellow!"

* * * *

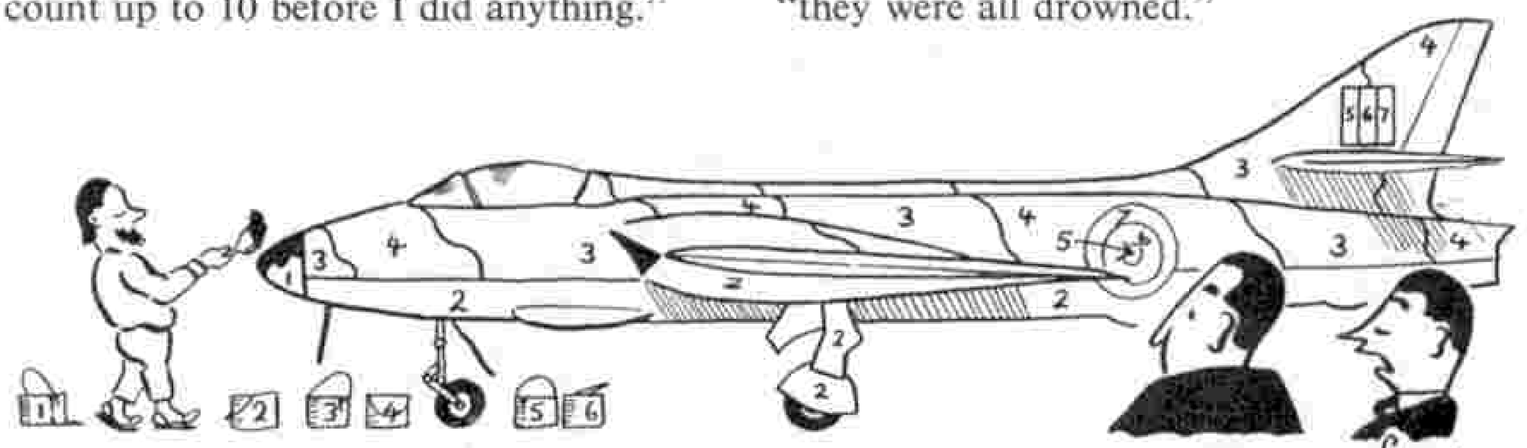
A wealthy skinflint asked a famous artist to do a large painting of the destruction of the Egyptians in the Red Sea. The artist agreed, but the fee offered him was so miserably small that he demanded payment in advance. When the painting was finally delivered, the buyer was infuriated at beholding a large, blank square of canvas. He stormed to the artist's studio in a rage.

"You have cheated me!" he cried. "Where are the Israelites?"

"They have already crossed over," was the answer.

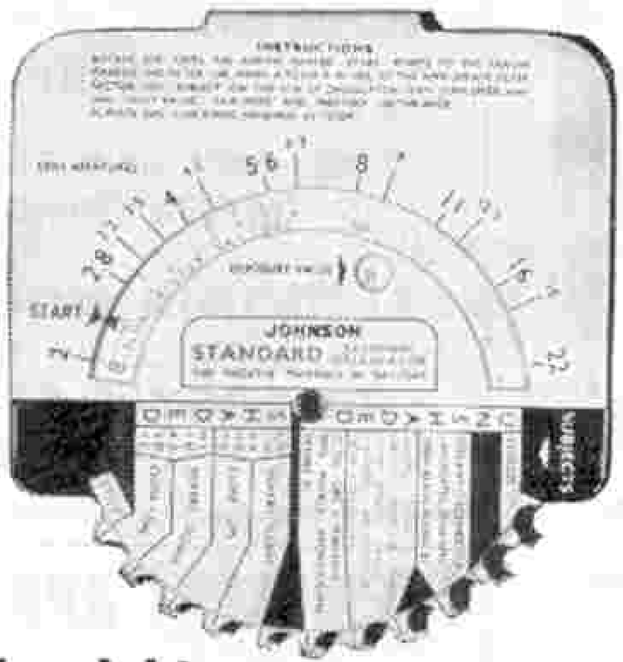
"And I see no Egyptians!" fumed the miser.

"As you well know," retorted the artist, "they were all drowned."



"Real arty type! Mad keen on this painting-by-numbers lark!"

PHOTOGRAPHERS!



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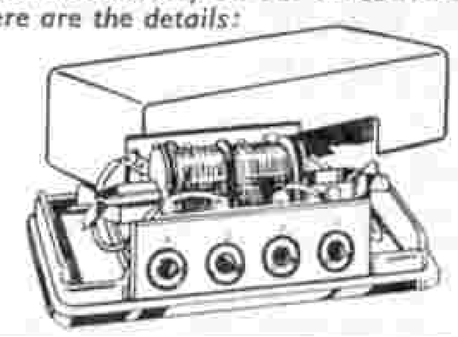

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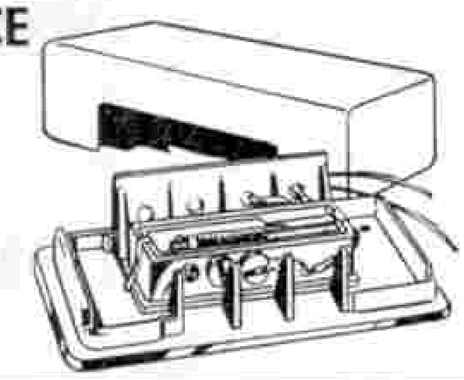

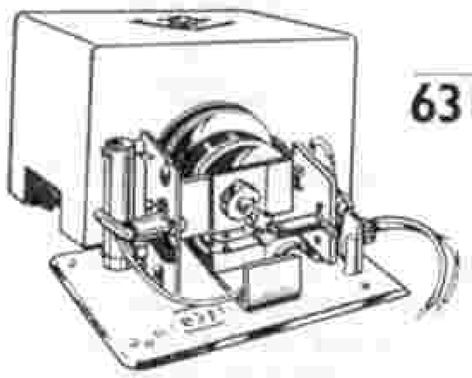

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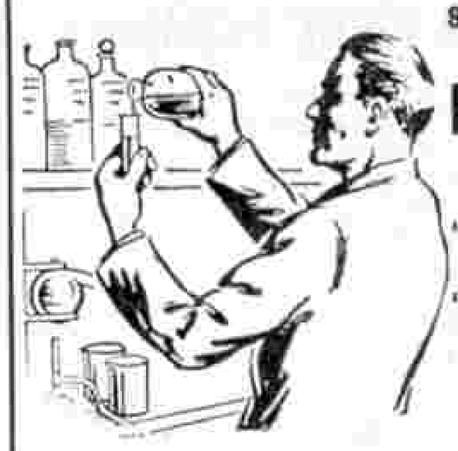

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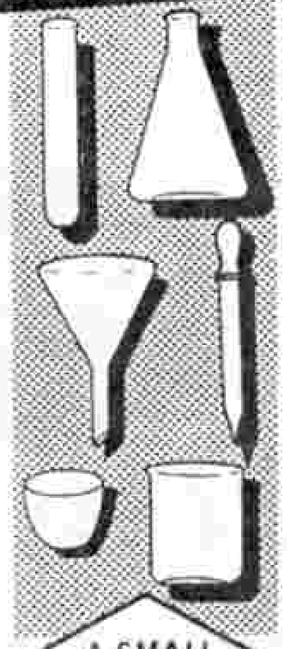

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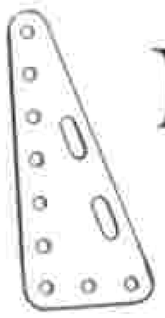

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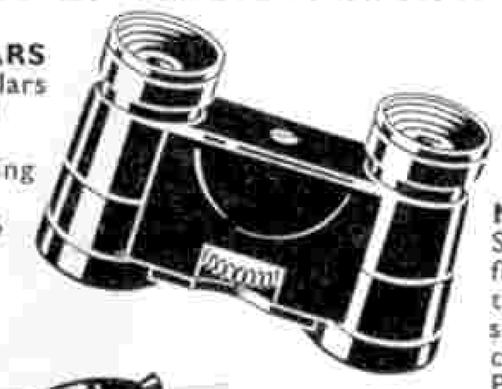

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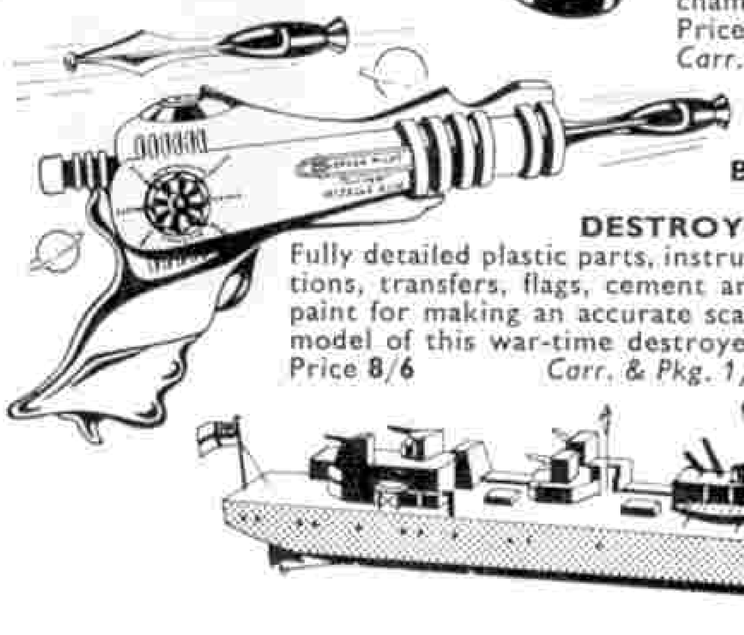

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